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ABSTRACT

Data from the Survey of Income and Program Participation (SIPP) regarding the educational attainment and background of the U.S. population are presented. The data show the numbers of persons by their highest attained degree level and the field of degree, along with some basic measures of their current economic and employment status. Other tabulations provide information about the coursework taken by persons who have attended at least 12 years of school, and the amount and types of work-related training individuals have experienced. All analyses are based on data collected as part of the third wave (interview) of the 1984 panel of the Survey of Income and Program Participation, gathered in the 4-month period from May to August 1984. Data are presented on degree status by sex, race, and age for the population aged 18 and older. Three measures of economic status are used: monthly income, mean monthly earnings, and work activity. Estimates are provided of the three measures for each degree group for all persons ages 18 and older. Information on the field of study of persons with degrees beyond high school and these economic measures is also provided. Appended are information on the SIPP program and data analyses and data reliability. (SW)

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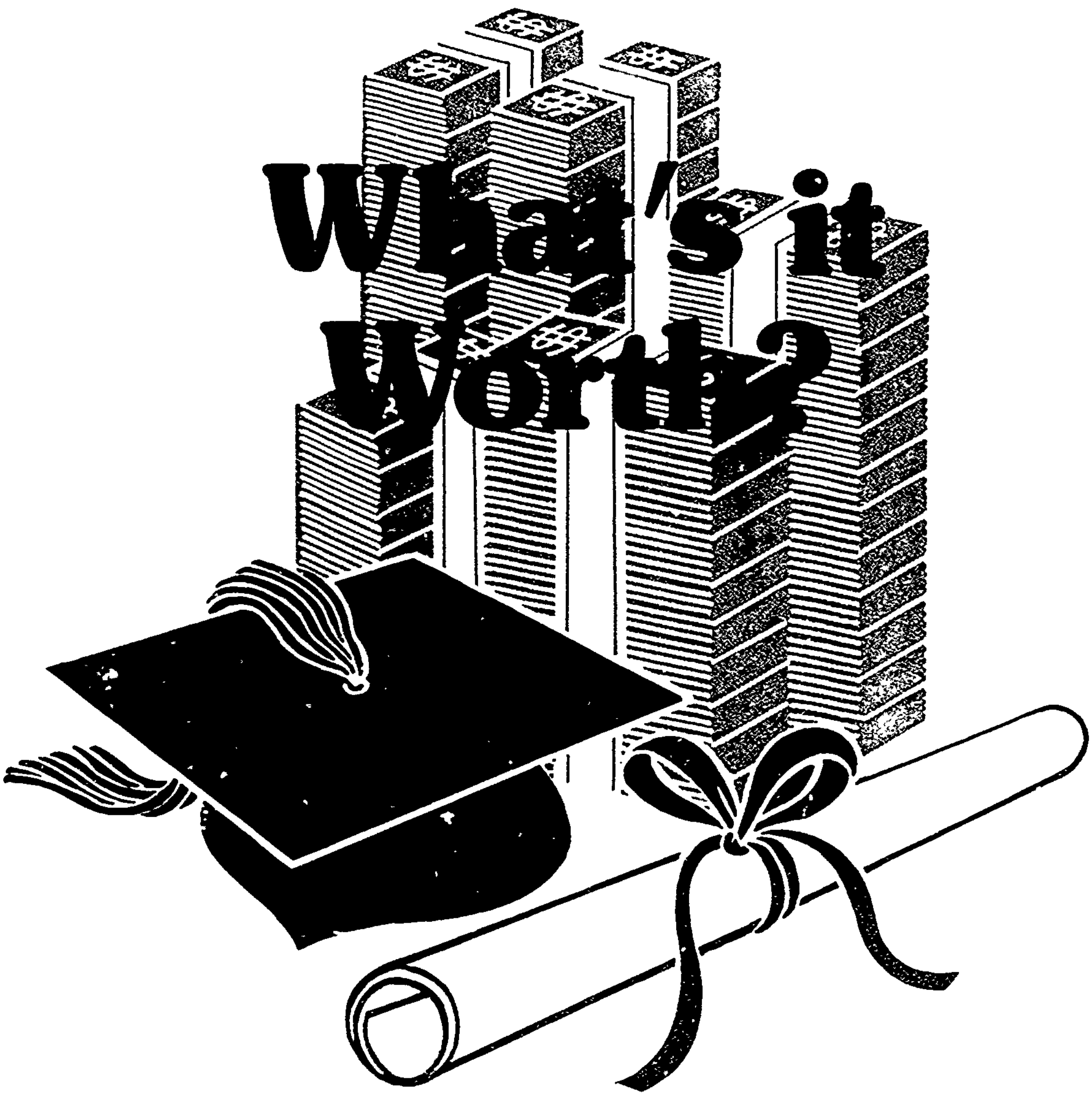

Educational Background and Economic Status: Spring 1984

Data from the Survey of Income and Program Participation

U.S. Department of Commerce
BUREAU OF THE CENSUS

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What's it Worth?

Educational Background and Economic Status: Spring 1984

Data from the Survey of Income and Program Participation

U.S. Department of Commerce
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for Economic Affairs

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Appendix Tables

Symbols Used in Tables

- Represents zero or rounds to zero.
X Not applicable.
NA Not available.
B Base is less than

What's It Worth?
Educational Background and Economic Status: Spring 1984

HIGHLIGHTS

All figures shown in parentheses define 90 percent confidence intervals. For details of calculation, see "Appendix C, Source and Reliability of the Estimates."

- About 21 percent (±0.4) of the adult population has obtained a degree beyond the high school level.
- Of all persons with degrees beyond high school, those with professional degrees report the highest mean monthly income — $3871 (±397).
- The field of business accounts for 19 percent (±0.8) of all individuals highest reported postsecondary degrees.
- While 13.7 percent (±1.0) of all degrees held by men are in the field of engineering, only 1.5 percent (±0.4) of degrees held by women are in this field.
- The average monthly income for persons with a bachelor's degree is $1841 (±75). Variation by field ranges from a high of $2846 (±595) for economics majors to $1065 (±333) for home economics majors.
- Of all persons who attended at least 12 years of school, 43 percent (±0.5) were in an academic or college prep track. Twenty percent (±0.6) of women were in a business track, compared with 5 percent (±0.3) of men.
- One in five persons between the ages of 18 and 64 (21.7 percent ±0.8) reported that they had at some time received training designed to help find a job, improve jobs skills, or learn a new job. A large proportion of these individuals (34.7 percent ±1.9) had obtained the training on their current job.

INTRODUCTION

The relationship between education and economic standing has received considerable scrutiny. The simple conclusion, widely accepted and verified, is that a strong correlation exists between economic status and the education and abilities gained (or certificated) in formal and vocational schooling. Often, education is described by the number of years of school the individual has completed. This topic is examined here using somewhat different data: formal degrees received and the fields of study in which they are received.

This report presents tabulations from the Survey of Income and Program Participation (SIPP) regarding the educational attainment and background of the population of the United States. These tabulations show the numbers of persons by their highest attained degree level and the field of degree, along with some basic measures of their current economic and employment status. Other tabulations provide information about the coursework persons received while in high school, and the amount and types of work-related training individuals have experienced. All analyses are based on data collected as part of the third wave (interview) of the 1984 panel of the Survey of Income and Program Participation, gathered in the 4-month period from May to August 1984.

DEGREE ATTAINMENT OF THE POPULATION

Table 1 presents data on degree status by sex, race, and age for the population aged 18 and older. Degree status as discussed in this report has been defined to include the following mutually exclusive categories: persons who have not completed high school, those completing high school and nothing more, persons who attended post-secondary school but did not receive a degree, persons with vocational degrees and certificates, associate degrees, bachelor's degrees, master's degrees, professional degrees, and doctorate degrees. [NOTE: Individuals were asked to identify their "highest" degree, and their implicit ordering of degrees was never examined. The specific point of whether one degree actually represents "more" education than some other degree is not at issue; while data may show highest value on some scale (say, income) for one degree, the same degree could result in less than the highest score on some other scale (e.g., years to complete the degree).]

The data show that the largest proportion of the population has a high school diploma as its highest degree. About 53 percent of the adult population reported that they had only a high school diploma or had a diploma and had attended, but not received a degree from, a post-secondary institution. A sizable proportion of the population (26 percent) reported that they had not completed high school. The remainder, about 21 percent, had obtained a degree of some type beyond high school.

Figure 1 summarizes the distribution of attainment categories for some demographic subgroups. While 23 percent of men held degrees beyond high school, only 19 percent of women had a degree. The discrepancy between Whites and Blacks was far larger: 22 percent of Whites held degrees above the high school level, as compared with 11 percent of Blacks. In addition, the proportion of Blacks without a high school degree (.39) was more than 50 percent higher than the proportion White (.24).

Examining the data by age groups (figure 2) shows the change in the education of the population that has transpired over the last half-century. (The 18-24 age group deviates from this pattern because its schooling is not finished.) While only 12 percent of persons age 65 and older have a degree beyond high school, 28 percent of those 25-34 years old have already obtained a degree. In terms of basic education about 14 percent of persons 25 to 34 have not completed high school, compared with 26 percent of persons 45 to 54 and 54 percent of individuals 65 or older.

DEGREE LEVEL AND ECONOMIC STATUS

Independent of the personal enrichment and value that one derives from additional schooling, it is often assumed that there is some positive economic return associated with the attainment of higher education. In some instances, for example, a specific degree may be a formal requirement for a job or a promotion.

Table 2 shows three basic measures of economic status for the degree categories already elaborated. The first of these is mean monthly income, defined as the total income received by the person during the 4 observation months of the survey, divided by 4. Income includes wages and salary as well as any other money income, i.e., pensions, paid benefits, interest, and dividends. The second measure, mean monthly earnings, is computed as the total of all earnings over the 4-month period divided by the number of months in which earnings were actually received. Because some jobs are seasonal, or may not pay on a regular monthly basis, this measure only uses months in which earnings (salary or wages obtained from employment) were received. The third measure, work activity, gives a general idea of the amount of employment during the 4-month period. For each month that the individual held a job, whether for the entire month or only for a few days, a value of "1" is recorded. This includes persons who may have only had a job for a week or two and spent the remainder of the month looking for a different job, on layoff, or who left the labor force (without a job and not looking). Persons who did not have a job at any time during the month, regardless of whether they were looking for one or not, receive a value of "0" for that month. Persons reporting a job in all 4 months would have a value of "4", while those who reported a job in no months have a value of "0".

Table 2 shows the estimates of these three measures for each of the degree groups for all persons ages 18 and older. The data show that there are substantial differences, both in terms of income and earnings, between some of the degree levels beyond high school. The highest value for mean monthly income is reported by persons with professional degrees, while the lowest is given by persons with vocational degrees.

Most degrees beyond high school have significantly higher income and earnings values associated with them than the next lower degree (except for the contrast of Ph.D. and professional degrees). In addition, the mean income and earnings measures for persons with only a high school diploma are in turn substantially larger than those for persons who did not complete high school. In short, the basic time-honored relationship between education and economic returns is clearly verified by these data.

The usefulness of the third measure, work activity, should not be overlooked. Even with this gross measure it is possible to see that there are differences between some degree levels with regard to employment. On the average, persons with associate degrees or higher held jobs sometime during the month in at least 3 of the 4 months observed, while persons who were not high school graduates held jobs in fewer than half of the observed months.

There are substantial differences between men and women at each degree level for both income and earnings, and the mean amount for males is always higher than that for females (except for the Ph.D. level where no comparison is made because of the small sample size). This pattern of difference also generally holds true for work activity, which probably accounts for some of the observed differences in income and earnings. Comparisons between Whites and Blacks can be made at four degree levels — master's, bachelor's , associate, and vocational. In all cases except master's, the mean monthly income of Whites is significantly larger than for Blacks. In comparative terms for these four degree levels, the ratio of male to female income (or earnings) is always greater than the White to Black ratio.

DEGREES AND FIELDS OF STUDY

As the data in table 2 illustrate, there are clear economic advantages in the attainment of post-secondary degrees. These degrees, however, are granted in a widevariety of fields, and as demand for these areas of expertise varies, so too should the number of persons who choose a given field of study and the rewards they

Figure 1. Educational Attainment, by Race and Sex

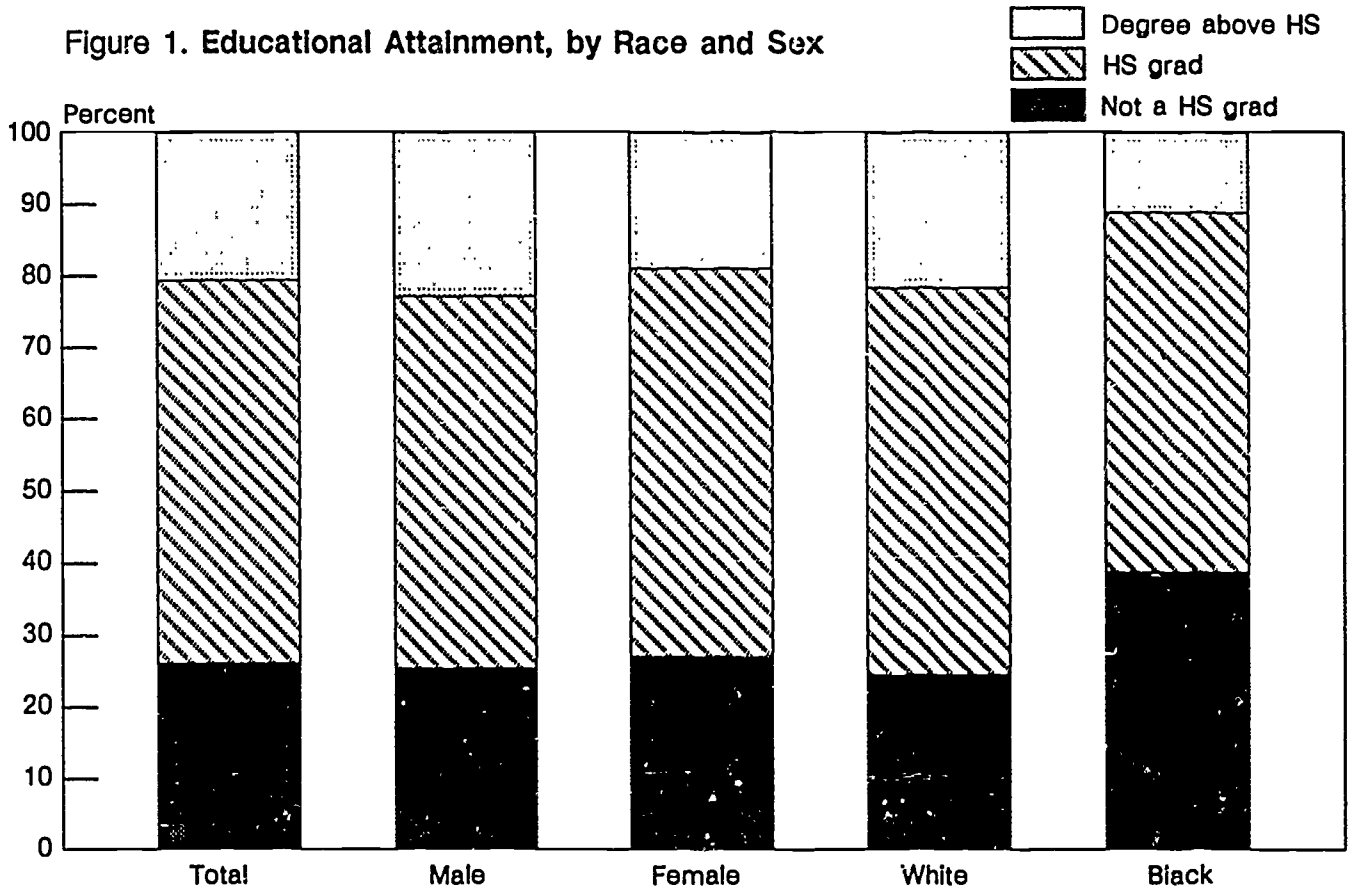
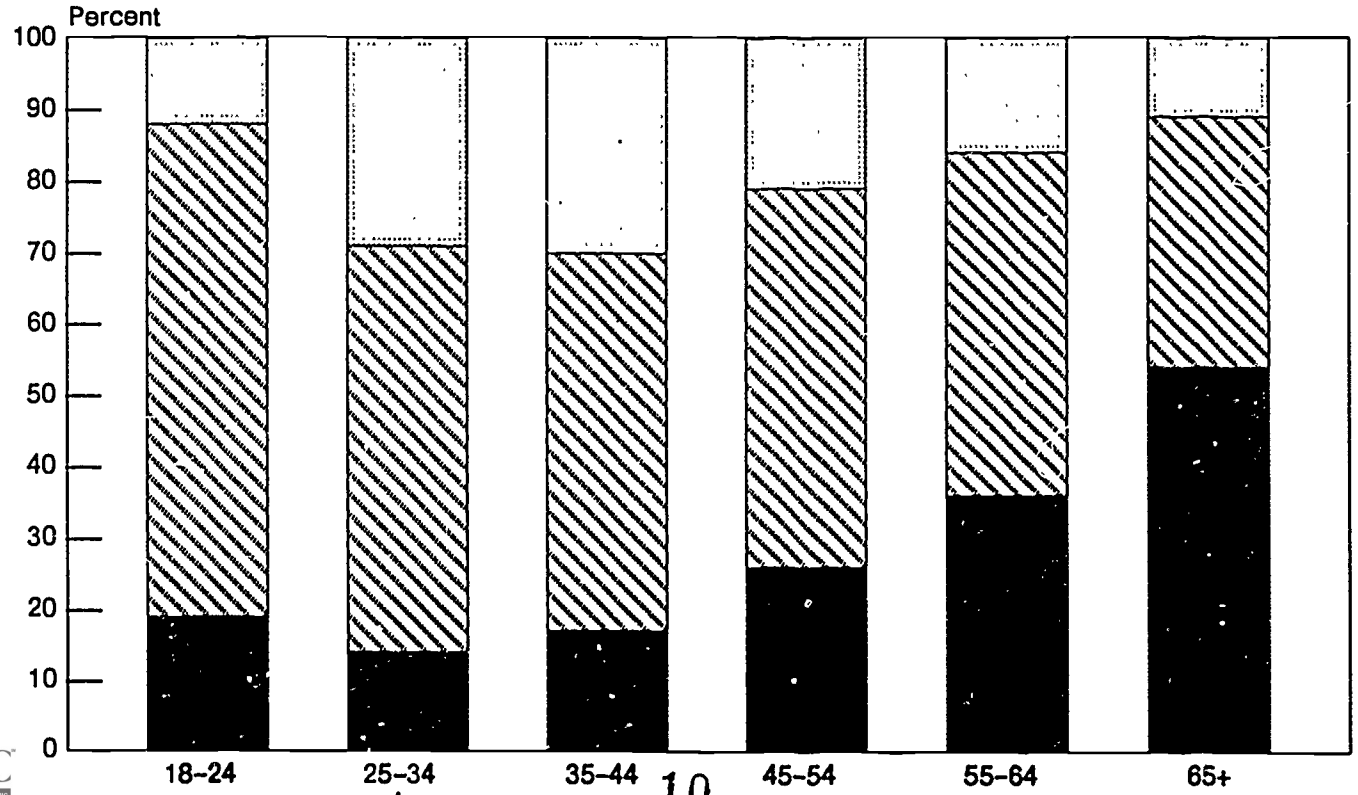


Figure 2. Educational Attainment, by Age Group



receive. As part of the data collected, persons were asked to report the field of training in which their highest degree was received. Respondents were given a flash-card with 20 possible choices (see appendix E) and asked to choose the field which most closely matched the area of their own degree. Table 3 shows field of degree by sex and race for all persons with post-secondary degrees.

The first panel of the table shows the diversity of fields of training for the various degrees. Some fields are clearly associated with one or two degree types - law and medicine, for example; while others such as business and education have degree holders at several degree levels. The largest single field is business, representing nearly 1 in every 5 degrees; education accounts for about 16 percent. The short list of 20 fields does a relatively good job of classifying most individuals with only 7 percent of all respondents choosing the category "other" as the field of their degree. About 60 percent of all professional and doctorate degrees combined were in just two fields - law and medicine/dentistry; one-third of all master's degrees were in education.

There are several notable differences between the sexes with respect to degree fields. While 23 percent of the men with degrees held them in business, only 15 percent of the women held their degree in this field. The differential in engineering degrees is even more lopsided: men held 2.5 million degrees in engineering, representing about 14 percent of all degrees held by men. By contrast, there were only 245,000 women with engineering degrees - about 1 percent of all female degree-holders. Conversely, women occupy some fields in much higher proportion than men: 25 percent of all highest degrees held by women were in the field of education; for men this field accounts for 9 percent. Other fields such as English, home economics and liberal arts are represented more frequently by women than men, both in numeric and proportionate terms. While 1,780,000 men held a highest degree in one of these three fields (9.6 percent of all men with degrees), 2,883,000 women (17.2 percent of all female degree holders) obtained their highest degree in one of these areas. Differences in fields between Whites and Blacks are all 4 percentage points or less.

FIELDS OF STUDY AND ECONOMIC STATUS

Every year, several million college students are faced with one of the most difficult decisions in college—the choice of a major. For some students, the choice reflects a pattern of interest that has developed over time, while for other students the choice may be motivated by the path of least academic resistance. One factor which enters into the choice of field of study for many students perceived economic rewards that may accrue from a degree in the chosen field. To a large extent, ultimate financial rewards may result more from the skills of the individual, the specific job they take, and the relative demand for the type of position. Nevertheless, the field of training has some bearing on eventual economic outcomes. Table 4 snows the summary economic measures previously discussed by various fields and types of degrees. Because the SIPP data are part of a sample survey, there are not always enough sample cases to provide statistically reliable estimates of every field and degree combination. The panels of table 4 have been chosen to produce tables where most cells have an estimated base of at least 200,000 persons.

The first panel of table 4 shows the average monthly income, earnings, and work activity by fields for all persons aged 18 and above with a degree beyond high school. Variations specific to degree levels are not controlled in these data, but field-specific variations are still evident. As might be expected, degrees in the field of law and medicine are associated with some of the highest average monthly incomes, while those in home economics, technical health fields, and liberal arts are among the lowest. Regardless of field, persons with a degree beyond high school had average monthly incomes that were substantially larger than that of persons with a high school diploma only ($1,910 vs. $1,045).

Adding precision in terms of the type of degree gives a better picture of the economic value of specific fields. The second and third panels of table 4 show the various economic measures by fields for all advanced degrees (i.e., master's, professional, and doctorate) and bachelor's only. As in the first panel, the data for advanced degrees show that several of the largest monthly incomes are associated with the fields of medicine and law ($4,234 and $4,060 per month, respectively). Other fields with monthly incomes greater than $3,000 include business and engineering. Persons with advanced degrees in the fields of theology, technical health, and liberal arts report average monthly incomes that are among the lowest for all advanced degree holders. This pattern is not repeated in the third panel (for bachelor's degrees only) because there are relatively few such degrees in law and medicine. The results do show that some of the largest average monthly incomes for bachelor's degree fields are reported by persons with training in economics, engineering, and physical science, while those with degrees in home economics, psychology, or education have some of the lowest monthly averages. However, persons with training in a given field may not hold an occupation specifically related to that field. In addition, some variability in income is due to the age of the individual, not controlled for in this table.

Overall, the mean monthly income of persons whose highest degree is the bachelor's is $1,841, but there

are some bachelor's degree fields which have average incomes that are substantially higher than some other advanced degree fields. For example, the average monthly income of bachelor's degree recipients in engineering was $2,833, while the average monthly income of persons with an advanced degree in English was $1,945. These figures are estimates only of some of the economic rewards associated with the occupations held by individuals of given degrees and degree fields. Choices of fields of study are based upon many other factors not measured here, such as personal taste, commitment, and ability.

HIGH SCHOOL CURRICULA AND COURSEWORK

While a substantial number of persons have obtained some education beyond high school, the majority of the population has at most finished high school and perhaps a little more. Education through high school is seen by many as the minimum requirement for the functional rigors of everyday life. The education obtained in high school varies markedly, however. "Tracking", legally-mandated minimum basic education requirements, and specialized "enrichment" and "magnet" programs, along with the typical course choices most students are allowed, all lead to a diverse mix of courses and training even before the beginning of post-secondary schooling. The SIPP interview asked all respondents who had attended at least the 12th grade some basic questions about their high school courses and curricula. Table 5 shows the numbers of persons who have taken each of several high school courses by their general program of study. In terms of programs, 43 percent reported following "academic" or "college prep" programs, while 38 percent said they were in a "general" program. Another 12 percent reported a business track, 6 percent vocational, and 1 percent some other kind of program. While 5 percent of males said their high school training was taken in a business track, 20 percent of women claimed to have followed such a course of study.

In terms of specific coursework, the courses listed were taken by sizable proportions of the population. No fewer than 40 percent of all persons had taken courses in trigonometry or geometry, chemistry or physics, 2 years of foreign language, industrial arts, and business. Over three-fourths of persons had taken algebra, and over 90 percent had taken 3 or more years of English. Proportions vary somewhat depending on the specific track one followed. Most notably, while 92 percent of persons from business programs reported taking 2 or more years of business courses, this training was taken by only 35 percent of those in non-business programs. Similarly, 2 or more years of vocational courses were much more likely among persons reporting vocational programs, and trigonometry, science and foreign language are characteristic of persons from college prep programs.

Some substantial differences in coursework exist between males and females. While proportionately more males took courses in algebra, advanced math, and physical science, proportionately more females took foreign languages and business courses. In terms of race differences, Whites were more likely than Blacks to have taken advanced math or 2 or more years of foreign language, both in the total population as well as for only those persons from an academic or college preparatory track. Examined across age cohorts, the proportion of persons reporting these kinds of coursework does not reveal any strong temporal shift, suggesting that the general content of American secondary schooling has not undergone any massive change over the past four decades. It is important to remember, however, that for older cohorts large proportions of persons did not complete high school and, therefore, are not represented in the coursework data.

WORK-RELATED TRAINING

In addition to the education and training individuals receive in pursuit of traditional degrees, learning also goes on in other contexts. One of the more organized forms is the learning individuals experience as a part of their job or in preparation for one. Some training is provided by government-sponsored programs or by courses offered in the workplace. Training may also be offered in a less formal context such as on-the-job seminars, short-term refresher courses, or computer-assisted instruction. All persons under 65 years old were asked if they had "ever received training designed to help people find a job, improve job skills, or learn a new job." For those individuals responding affirmatively, additional questions were asked about the location and nature of the most recent training. These data are presented in table 6.

About 1 in 5 adults between the ages of 18 and 64 reported that they had received work related training at some time. Males were more likely than women to have received training, and individuals with less than 9 years of education were far less likely to have received training than persons with more than 9 years of schooling. A large proportion of those persons who had received work training said they used this training on their current job (68 percent). Use of training in the current job was most frequent for persons with more than 12 years of education (74 percent). The high rates of both training and use of training for the highest education group might at first appear to be counter-intuitive, since work training is often perceived as being aimed at groups "in need", i.e., less well-educated, unemployed. The questions in SIPP, however, asked about any work-related training, which would include the very general types of training that persons receive in the course of beginning and learn-

ing about a new job, and about one-third of all respondents who received training said it was obtained at work. In this context, is not unreasonable that higher rates of training are reported by those persons with higher levels of education and greater likelihood of being employed.

While training was received in a wide variety of places, the workplace was the most frequently mentioned locale. (Respondents could report more than one location.) A large proportion (35 percent) of all persons with training said they had received it at sometime since 1983. This finding should be viewed with some caution, since the questions asked for information about the "most recent" training. In addition, the recall of training received even more than a few years ago may be difficult for many repsondents, particularly if the training was short-term or of an informal nature. The average length of training programs was reported as about 7 weeks, but many programs lasted a week or less.

Payment for work training generally came from the employer (51 percent of all training since 1980) or some government agency (Federal, State, or local). However, a substantial proportion of training was paid for by the individual or their family (21 percent). Data about training that had occurred since 1982 in the context of specific Federally sponsored programs (e.g., CETA, JTPA, WIN, Job Corps, Trade Adjustment Assistance) indicate that these programs together accounted for a small proportion of the most recent work training obtained during this time (about 6 percent). In general, these data on work training provide a simple illustration of the magnitude and diversity of learning which goes on beyond regular education. While Government-sponsored programs provide some of this training, many other forms also exist, with training received at work accounting for the largest share.

Table 1. Highest Degree Earned, by Race, Sex, and Age, for Persons 18 Years and Over

(Numbers in thousands)

Race, age, and sex	Total	Doctorate	Professional	Master's	Bachelor's	Associate	Vocational	Some college, no degree	High school graduate only	Not a high school graduate
All Persons										
Total	170,232	768	1,744	5,795	18,069	5,768	3,105	30,301	60,358	44,324
Male	80,834	585	1,432	3,110	9,581	2,804	1,023	15,444	26,407	20,448
Female	89,398	183	312	2,685	8,488	2,964	2,082	14,857	33,951	23,876
White										
Total	147,147	705	1,634	5,353	16,339	5,108	2,769	26,255	53,129	35,855
Male	70,276	558	1,355	2,923	8,703	2,498	919	13,444	23,270	16,606
Female	76,871	147	279	2,430	7,636	2,610	1,850	12,811	29,859	19,249
Black										
Total	18,475	32	53	286	963	482	254	3,229	6,043	7,133
Male	8,274	14	35	101	416	197	70	1,589	2,589	3,263
Female	10,201	18	18	185	547	285	184	1,640	3,454	3,870
Age										
18 to 24	28,494	5	-	63	1,968	978	389	8,698	11,048	5,346
25 to 34	40,474	147	509	1,585	6,353	2,099	806	8,231	14,973	5,770
35 to 44	30,480	255	538	1,947	4,318	1,366	678	5,428	10,883	5,067
45 to 54	22,264	123	249	993	2,109	662	455	2,832	8,959	5,883
55 to 64	22,060	125	256	681	1,750	422	385	2,675	7,789	7,977
65 and over	26,458	114	193	526	1,570	241	391	2,436	6,706	14,281
PERCENT DISTRIBUTION										
All Persons										
Total	1.000	0.005	0.010	0.034	0.106	0.034	0.018	0.178	0.355	0.260
Male	1.000	0.007	0.018	0.038	0.119	0.035	0.013	0.191	0.327	0.253
Female	1.000	0.002	0.003	0.030	0.095	0.033	0.023	0.166	0.380	0.267
White										
Total	1.000	0.005	0.011	0.036	0.111	0.035	0.019	0.178	0.361	0.244
Male	1.000	0.008	0.019	0.042	0.124	0.036	0.013	0.191	0.331	0.236
Female	1.000	0.002	0.004	0.032	0.099	0.034	0.024	0.167	0.388	0.250
Black										
Total	1.000	0.002	0.003	0.015	0.052	0.026	0.014	0.175	0.327	0.386
Male	1.000	0.002	0.004	0.012	0.050	0.024	0.008	0.192	0.313	0.394
Female	1.000	0.002	0.002	0.018	0.054	0.028	0.018	0.161	0.339	0.379
Age										
18 to 24	1.000	0.000	0.000	0.002	0.069	0.034	0.014	0.305	0.388	0.188
25 to 34	1.000	0.004	0.013	0.039	0.157	0.052	0.020	0.203	0.370	0.143
35 to 44	1.000	0.008	0.018	0.064	0.142	0.045	0.022	0.178	0.357	0.166
45 to 54	1.000	0.006	0.011	0.045	0.095	0.030	0.020	0.127	0.402	0.264
55 to 64	1.000	0.006	0.012	0.031	0.079	0.019	0.017	0.121	0.353	0.362
65 and over	1.000	0.004	0.007	0.020	0.059	0.009	0.015	0.092	0.253	0.540

Table 2. Four-Month Average Income, Earnings and Work Activity, and Educational Attainment, by Sex, Race, and Age, for Persons 18 Years and Over

Educational attainment	Monthly income		Monthly earnings		Work activity	
	Mean	Standard error	Mean	Standard error	Mean	Standard error
All Persons						
Total	$1,155	$14	$917	$12	2.47	0.01
Doctorate	3,265	224	2,747	221	3.35	0.14
Professional	3,871	248	3,439	241	3.45	0.09
Master's	2,288	77	1,956	76	3.32	0.05
Bachelor's	1,841	47	1,540	44	3.08	0.03
Associate	1,346	41	1,188	40	3.16	0.06
Vocational	1,219	59	990	57	2.75	0.09
Some college, no degree	1,169	34	965	29	2.76	0.03
High school graduate only	1,045	26	848	20	2.61	0.02
Not high school graduate	693	11	415	11	1.56	0.02
Male						
Total	1,620	22	1,355	20	2.93	0.02
Doctorate	3,667	258	3,073	256	3.51	0.15
Professional	4,309	289	3,809	283	3.52	0.09
Master's	2,843	104	2,504	104	3.56	0.06
Bachelor's	2,455	70	2,119	64	3.48	0.04
Associate	1,755	67	1,577	66	3.49	0.07
Vocational	1,822	128	1,574	130	3.33	0.12
Some college, no degree	1,534	43	1,308	36	3.09	0.04
High school graduate only	1,510	44	1,302	41	3.11	0.03
Not high school graduate	973	21	665	21	2.07	0.04
Female						
Total	734	16	520	11	2.05	0.02
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	1,864	221	1,745	220	3.14	0.24
Master's	1,645	105	1,322	102	3.05	0.09
Bachelor's	1,148	55	886	53	2.62	0.05
Associate	959	40	819	38	2.85	0.09
Vocational	923	54	703	49	2.46	0.11
Some college, no degree	789	50	608	46	2.41	0.04
High school graduate only	684	31	496	13	2.22	0.03
Not high school graduate	453	8	202	8	1.12	0.03
White						
Total	1,208	15	954	13	2.50	0.01
Doctorate	3,342	234	2,806	230	3.35	0.15
Professional	3,927	260	3,476	253	3.45	0.09
Master's	2,287	71	1,944	69	3.33	0.05
Bachelor's	1,881	51	1,564	48	3.06	0.04
Associate	1,367	45	1,201	43	3.16	0.06
Vocational	1,248	65	1,[illegible]06	63	2.76	0.09
Some college, no degree	1,213	38	[illegible]50	33	2.78	0.03
High school graduate only	1,080	30	869	22	2.60	0.02
Not high school graduate	734	13	439	13	1.59	0.03
Black						
Total	754	18	619	19	2.18	0.04
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	(B)	(B)	(B)	(B)	(B)	(B)
Master's	1,966	182	1,857	193	3.38	0.25
Bachelor's	1,388	99	1,261	99	3.20	0.15
Associate	1,158	110	1,047	111	3.11	0.22
Vocational	860	142	771	150	2.52	0.35
Some college, no degree	862	51	790	53	2.55	0.10
High school graduate only	765	31	674	30	2.63	0.07
Not high school graduate	513	18	309	20	1.37	0.07
Persons 18 to 24 Years Old						
Total	572	25	565	25	2.63	0.03
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	(B)	(B)	(B)	(B)	(B)	(B)
Master's	(B)	(B)	(B)	(B)	(B)	(B)
Bachelor's	937	197	930	197	3.04	0.10
Associate	799	51	800	51	3.34	0.12
Vocational	786	67	776	67	3.48	0.18
Some college, no degree	516	63	518	64	2.60	0.05
High school graduate only	633	15	631	16	2.87	0.04
Not high school graduate	341	15	309	16	1.84	0.07
Persons 24 to 34 Years Old						
Total	1,173	19	1,114	19	3.07	0.02
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	2,726	341	2,701	340	3.71	0.11
Master's	1,906	169	1,849	166	3.58	0.08
Bachelor's	1,582	51	1,508	44	3.43	0.05

Table 2. Four-Month Average Income, Earnings and Work Activity, and Educational Attainment, by Sex, Race, and Age, for Persons 18 Years and Over—Continued

Educational attainment	Monthly income		Monthly earnings		Work activity	
	Mean	Standard error	Mean	Standard error	Mean	Standard error
Associate	1,335	71	1,267	69	3.37	0.08
Vocational	1,155	100	1,084	101	3.19	0.15
Some college, no degree	1,181	31	1,120	30	3.19	0.05
High school graduate only	1,003	33	963	33	2.99	0.04
Not high school graduate	721	26	636	26	2.37	0.07
Persons 35 to 44 Years Old						
Total	1,517	31	1,390	27	3.13	0.02
Doctorate	3,444	413	3,298	384	3.78	0.14
Professional	4,395	433	4,166	408	3.75	0.11
Master's	2,482	126	2,333	123	3.61	0.07
Bachelor's	2,150	106	1,989	100	3.46	0.06
Associate	1,650	84	1,521	83	3.36	0.10
Vocational	1,405	125	1,340	127	3.18	0.16
Some college, no degree	1,615	92	1,430	65	3.23	0.06
High school graduate only	1,176	34	1,084	32	3.12	0.04
Not high school graduate	813	39	712	39	2.41	0.07
Persons 45 to 54 Years Old						
Total	1,523	51	1,349	49	2.93	0.03
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	5,168	962	4,814	944	3.82	0.13
Master's	2,722	192	2,450	182	3.71	0.09
Bachelor's	2,489	138	2,195	127	3.42	0.08
Associate	1,727	149	1,464	131	3.37	0.15
Vocational	1,381	209	1,165	173	2.88	0.23
Some college, no degree	1,713	112	1,482	107	3.07	0.08
High school graduate only	1,386	102	1,252	101	2.98	0.05
Not high school graduate	860	38	744	39	2.40	0.7
Persons 55 to 64 Years Old						
Total	1,310	55	896	32	2.16	0.04
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	4,670	603	4,007	573	3.54	0.22
Master's	2,383	195	1,731	199	3.07	0.18
Bachelor's	2,495	193	1,697	176	2.69	0.12
Associate	1,173	137	774	144	2.03	0.26
Vocational	1,485	238	1,109	224	2.51	0.26
Some college, no degree	1,590	95	1,070	87	2.49	0.10
High school graduate only	1,202	132	790	51	2.14	0.06
Not high school graduate	822	38	558	37	1.79	0.06
Persons 65 Years and Over						
Total	896	28	101	14	0.47	0.02
Doctorate	(B)	(B)	(B)	(B)	(B)	(B)
Professional	2,707	541	833	380	1.35	0.37
Master's	1,929	197	353	108	1.10	0.21
Bachelor's	1,569	120	145	38	0.61	0.10
Associate	1,198	163	150	76	0.85	0.28
Vocational	1,011	98	82	46	0.46	0.18
Some college, no degree	1,377	191	272	136	0.71	0.08
High school graduate only	965	71	97	14	0.55	0.05
Not high school graduate	630	11	46	6	0.34	0.03

(B) Base is less than 200,000 persons

Table 3. Highest Degree and Field of Degree, by Sex, Race, and Age, for All Persons 18 Years and Over With Post-Secondary Degrees

(Numbers in thousands)

Field of degree	Total		Doctorate or professional	Master's	Bachelor's	Associate	Vocational
	Number	Percent					
All persons with degrees	35,250	100	2,511	5,795	18,067	5,770	3,104
Agriculture/Forestry	561	2	23	17	387	96	38
Biology	665	2	56	92	472	33	12
Business/Management	6,687	19	27	958	3,476	1,593	634
Economics	493	1	50	57	354	28	4
Education	5,736	16	135	1,891	3,270	336	103
Engineering	2,778	8	67	353	1,757	486	116
English/Journalism	1,081	3	20	194	813	52	-
Home Economics	427	1	-	48	318	45	16
Law	947	3	814	13	101	18	-
Liberal Arts/Humanities	3,155	9	35	462	1,874	754	30
Mathematics/Statistics	583	2	26	107	407	43	-
Medicine/Dentistry	977	3	740	4	127	68	38
Nursing,Pharmacy/Technical Health	2,698	8	96	169	887	711	836
Physical/Earth Sciences	810	2	81	169	491	69	-
Police Science/Law Enforcement	324	1	-	30	123	165	5
Psychology	808	2	53	171	519	55	5
Religion/Theology	535	2	140	163	164	14	53
Social Sciences	1,908	5	47	294	1,423	144	-
Vo-tech studies	1,589	5	-	18	139	437	995
Other	2,488	7	95	585	965	623	219
Male	18,534	100	2,017	3,109	9,581	2,800	1,023
Agriculture/Forestry	513	3	23	17	349	86	38
Biology	353	2	34	59	229	23	8
Business/Management	4,232	23	23	769	2,553	765	121
Economics	415	2	50	39	302	24	-
Education	1,584	9	99	699	716	70	-
Engineering	2,533	14	67	306	1,626	436	97
English/Journalism	419	2	16	104	285	13	-
Home Economics	30	0	-	17	4	9	-
Law	789	4	685	13	79	12	-
Liberal Arts/Humanities	1,331	7	23	197	759	335	17
Mathematics/Statistics	386	2	22	68	260	35	-
Medicine/Dentistry	735	4	629	4	74	14	14
Nursing,Pharmacy/Technical Health	267	1	26	48	120	48	25
Physical/Earth Sciences	586	3	76	123	355	33	-
Police Science/Law Enforcement	268	1	-	13	100	150	5
Psychology	318	2	30	59	205	24	-
Religion/Theology	434	2	131	142	129	5	27
Social Sciences	896	5	26	124	690	56	-
Vo-tech studies	1,026	6	-	12	130	300	584
Other	1,419	8	57	296	616	362	87
Female	16,715	100	494	2,683	8,489	2,964	2,081
Agriculture/Forestry	48	0	-	-	38	10	-
Biology	312	2	22	33	244	10	4
Business/Management	2,456	15	4	188	922	827	513
Economics	78	0	-	18	52	3	4
Education	4,151	25	36	1,192	2,554	265	103
Engineering	245	1	-	47	130	50	19
English/Journalism	662	4	5	89	529	39	-
Home Economics	397	2	-	31	314	36	16
Law	157	1	130	-	22	6	-
Liberals Arts/Humanities	1,824	11	11	265	1,115	419	13
Mathematics/Statistics	198	1	4	39	147	8	-
Medicine/Dentistry	242	1	111	-	54	53	24
Nursing,Pharmacy/Technical Health	2,431	15	70	120	767	663	811
Physical/Earth Sciences	224	1	5	46	137	36	-
Police Science/Law Enforcement	56	0	-	17	23	15	-
Psychology	490	3	28	112	314	30	5
Religion/Theology	100	1	9	21	35	9	26
Social Sciences	1,012	6	21	170	733	88	-
Vo-tech studies	563	3	-	5	10	137	411
Other	1,069	6	38	290	349	260	132
White	31,910	100	2,339	5,353	16,339	5,106	2,768
Agriculture/Forestry	545	2	23	17	380	88	38
Biology	596	2	51	87	417	28	12
Business/Management	6,045	19	24	853	3,182	1,411	576
Economics	423	1	43	48	312	16	4
Education	5,292	17	124	1,735	3,030	302	100
Engineering	2,472	8	63	327	1,561	428	92
English/Journalism	1,008	3	20	189	765	33	-
Home Economics	391	1	-	43	287	45	16
Law	878	3	771	13	76	18	-
Liberal Arts/Humanities	2,896	9	27	447	1,741	657	24
Mathematics/Statistics	526	2	26	98	363	38	-
Medicine/Dentistry	864	3	678	4	94	61	27
Nursing,Pharmacy/Technical Health	2,421	8	91	150	756	674	750
Physical/Earth Sciences	729	2	81	149	439	60	-
Police Science/Law Enforcement	289	1	-	25	115	144	5

Table 3. Highest Degree and Field of Degree, by Sex, Race, and Age, for All Persons 18 Years and Over With Post-Secondary Degrees—Continued

(Numbers in thousands)

Field of degree	Total		Doctorate or professional	Master's	Bachelor's	Associate	Vocational
	Number	Percent					
Psychology	761	2	59	171	477	49	5
Religion/Theology	512	2	131	154	159	14	53
Social Sciences	1,670	5	42	275	1,243	110	-
Vo-tech studies	1,351	4	-	18	120	360	853
Other	2,241	7	85	550	822	570	213
Black	2,072	100	86	284	963	483	255
Agriculture/Forestry	4	0	1	-	-	4	-
Biology	21	1	5	5	12	-	-
Business/Management	433	21	3	40	195	152	43
Economics	23	1	3	4	15	-	-
Education	376	18	11	142	194	26	3
Engineering	107	5	-	11	60	11	24
English/Journalism	52	3	-	5	30	17	-
Home Economics	23	1	-	5	18	-	-
Law	45	2	35	-	10	-	-
Liberal Arts/Humanities	153	7	5	5	63	74	6
Mathematics/Statistics	38	2	-	4	29	5	-
Medicine/Dentistry	44	2	14	-	18	6	6
Nursing,Pharmacy/Technical Health	147	7	-	8	48	26	64
Physical/Earth Sciences	22	1	-	6	11	5	-
Police Science/Law Enforcement	35	2	-	5	8	21	-
Psychology	33	2	-	-	27	6	-
Religion/Theology	18	1	4	9	5	-	-
Social Sciences	190	9	5	14	138	34	-
Vo-tech studies	168	8	-	-	15	50	103
Other	140	7	-	21	67	46	6
Persons 18 to 24	3,403	100	5	63	1,968	978	389
Agriculture/Forestry	63	2	-	-	22	34	7
Biology	74	2	-	-	62	12	-
Business/Management	804	24	-	20	484	247	53
Economics	47	1	-	-	43	-	4
Education	205	6	-	13	142	40	10
Engineering	386	11	-	4	282	76	24
English/Journalism	109	3	-	-	97	12	-
Home Economics	19	1	-	-	9	10	-
Law	24	1	-	-	24	-	-
Liberal Arts/Humanities	386	11	-	4	231	146	5
Mathematics/Statistics	43	1	-	-	35	8	-
Medicine/Dentistry	44	1	-	-	22	11	11
Nursing,Pharmacy/Technical Health	209	6	-	-	79	84	46
Physical/Earth Sciences	78	2	-	12	48	18	-
Police Science/Law Enforcement	41	1	-	-	15	26	-
Psychology	92	3	-	5	64	23	-
Religion/Theology	25	1	-	-	17	-	8
Social Sciences	169	5	-	-	134	35	-
Vo-tech studies	240	7	-	-	13	57	170
Other	344	10	5	5	145	138	51
Persons 25 to 34	11,500	100	656	1,585	6,354	2,099	806
Agriculture/Forestry	203	2	5	-	150	34	14
Biology	287	2	14	36	221	16	-
Business/Management	2,104	18	4	256	1,230	490	124
Economics	155	1	4	25	121	5	-
Education	1,532	13	6	432	1,028	66	-
Engineering	774	7	16	119	456	161	22
English/Journalism	299	3	5	34	246	14	-
Home Economics	148	1	-	17	93	27	11
Law	279	2	250	-	23	6	-
Liberal Arts/Humanities	1,078	9	10	128	646	292	2
Mathematics/Statistics	218	2	9	51	140	18	-
Medicine/Dentistry	307	3	216	-	53	15	23
Nursing,Pharmacy/Technical Health	960	8	26	77	330	324	203
Physical/Earth Sciences	265	2	9	47	179	30	-
Police Science/Law Enforcement	143	1	-	7	52	79	5
Psychology	301	3	19	33	229	15	5
Religion/Theology	126	1	18	32	64	10	2
Social Sciences	775	7	12	84	635	44	-
Vo-tech studies	597	5	-	-	69	187	341
Other	951	8	33	207	369	266	56
Persons 35 to 44	9,102	100	793	1,947	4,318	1,366	678
Agriculture/Forestry	110	1	15	9	77	9	-
Biology	122	1	10	26	81	5	-
Business/Management	1,910	21	12	419	872	447	160
Economics	136	1	23	14	81	18	-
Education	1,752	19	41	674	984	49	4
Engineering	669	7	8	116	353	157	35
English/Journalism	237	3	5	36	172	24	-
Home Economics	71	1	-	9	57	5	-

Table 3. Highest Degree and Field of Degree, by Sex, Race, and Age, for All Persons 18 Years and Over With Post-Secondary Degrees—Continued

(Numbers in thousands)

Field of degree	Total		Doctorate or professional	Master's	Bachelor's	Associate	Vocational
	Number	Percent					
Law	347	4	306	9	20	12	-
Liberal Arts/Humanities	658	7	6	125	386	137	4
Mathematics/Statistics	141	2	13	19	96	13	-
Medicine/Dentistry	273	3	217	4	30	18	4
Nursing,Pharmacy/Technical Health	652	7	23	59	199	166	205
Physical/Earth Sciences	192	2	41	69	79	3	-
Police Science/Law Enforcement	108	1	-	19	52	37	-
Psychology	215	2	5	44	149	17	-
Religion/Theology	81	1	18	41	18	-	4
Social Sciences	511	6	22	81	383	25	-
Vo-tech studies	331	4	-	4	22	86	219
Other	583	6	25	168	209	139	42
Persons 45 to 54	4,591	100	372	993	2,109	662	455
Agriculture/Forestry	67	1	-	4	41	19	3
Biology	81	2	15	12	50	-	4
Business/Management	888	19	4	146	431	203	104
Economics	72	2	22	5	45	-	-
Education	794	17	16	338	389	35	16
Engineering	379	8	20	47	255	48	9
English/Journalism	149	3	5	51	90	3	-
Home Economics	25	1	-	-	25	-	-
Law	139	3	120	-	19	-	-
Liberal Arts/Humanities	371	8	4	76	206	79	6
Mathematics/Statistics	90	2	4	29	57	-	-
Medicine/Dentistry	122	3	104	-	3	15	-
Nursing,Pharmacy/Technical Health	414	9	14	17	137	95	151
Physical/Earth Sciences	121	3	4	14	95	8	-
Police Science/Law Enforcement	20	0	-	-	-	20	-
Psychology	89	2	8	45	36	-	-
Religion/Theology	103	2	23	44	36	-	-
Social Sciences	165	4	9	57	77	22	-
Vo-tech studies	229	5	-	8	13	71	137
Other	272	6	-	100	104	44	24
Persons 55 to 64	3,619	100	381	681	1,750	422	385
Agriculture/Forestry	84	2	4	4	62	-	14
Biology	53	1	13	13	27	-	-
Business/Management	635	18	4	72	309	155	95
Economics	58	2	-	4	49	5	-
Education	624	17	43	251	272	53	5
Engineering	356	10	18	49	250	35	4
English/Journalism	145	4	5	61	79	-	-
Home Economics	99	3	-	4	86	4	5
Law	93	3	83	-	10	-	-
Liberal Arts/Humanities	292	8	8	60	159	56	9
Mathematics/Statistics	62	2	-	4	58	-	-
Medicine/Dentistry	148	4	130	-	10	8	-
Nursing,Pharmacy/Technical Health	281	8	16	5	89	30	141
Physical/Earth Sciences	75	2	9	15	42	9	-
Police Science/Law Enforcement	14	0	-	5	5	4	-
Psychology	59	2	17	17	25	-	-
Religion/Theology	73	2	27	19	13	-	14
Social Sciences	172	5	-	40	118	14	-
Vo-tech studies	129	4	-	5	13	26	85
Other	167	5	4	53	74	22	14
Persons 65 and over	3,036	100	306	527	1,570	241	392
Agriculture/Forestry	34	1	-	-	34	-	-
Biology	46	2	4	3	31	-	8
Business/Management	346	11	3	45	150	50	98
Economics	24	1	-	9	15	-	-
Education	827	27	29	182	456	92	68
Engineering	212	7	5	18	159	8	22
English/Journalism	144	5	-	13	131	-	-
Home Economics	65	2	-	17	48	-	-
Law	64	2	55	4	5	-	-
Liberal Arts/Humanities	372	12	7	69	247	44	5
Mathematics/Statistics	30	1	-	4	22	4	-
Medicine/Dentistry	81	3	72	-	9	-	-
Nursing,Pharmacy/Technical Health	178	6	16	10	52	11	89
Physical/Earth Sciences	78	3	17	12	49	-	-
Police Science/Law Enforcement	0	0	-	-	-	-	-
Psychology	53	2	9	27	17	-	-
Religion/Theology	127	4	54	27	15	4	27
Social Sciences	117	4	4	33	76	4	-
Vo-tech studies	62	2	-	-	10	9	43
Other	171	6	29	53	44	13	32

Table 4. Four-Month Average Monthly Income, Average Monthly Earnings, and Work Activity, by Field of Degree

Field of degree	Monthly income		Monthly earnings		Work activity	
	Mean	Standard error	Mean	Standard error	Mean	Standard error
All Degrees[1]						
Total	$1,910	$33	$1,623	$31	3.13	0.02
Agriculture/Forestry	2,110	261	1,819	261	3.35	0.17
Biology	1,718	194	1,411	176	2.88	0.19
Business/Management	2,215	98	1,986	96	3.35	0.05
Economics	2,824	311	2,366	277	3.37	0.18
Education	1,526	60	1,211	61	2.87	0.06
Engineering	2,707	119	2,258	92	3.41	0.07
English/Journalism	1,544	179	1,184	167	2.80	0.15
Home Economics	1,063	166	571	101	2.24	0.26
Law	3,726	330	3,338	310	3.55	0.11
Liberal Arts/Humanities	1,383	66	1,094	60	2.91	0.08
Mathematics/Statistics	2,111	211	1,855	212	3.34	0.16
Medicine/Dentistry	3,440	320	3,060	319	3.28	0.13
Nursing, Pharmacy/Technical Health	1,299	59	1,117	56	2.97	0.09
Physical/Earth Sciences	2,554	270	2,122	226	3.16	0.15
Police Science/Law Enforcement	1,809	196	1,685	181	3.70	0.15
Psychology	1,543	134	1,350	133	3.05	0.16
Religion/Theology	1,530	136	1,171	128	3.25	0.18
Social Sciences	1,666	126	1,407	101	3.01	0.10
Vo-tech studies	1,456	79	1,280	74	3.20	0.11
Other	1,692	94	1,468	90	3.18	0.09
Advanced Degrees						
Total	2,711	80	2,341	78	3.35	0.04
Agriculture/Forestry	(B)	(B)	(B)	(B)	(B)	(B)
Biology	(B)	(B)	(B)	(B)	(B)	(B)
Business/Management	3,564	253	3,192	241	3.64	0.10
Economics	(B)	(B)	(B)	(B)	(B)	(B)
Education	2,062	140	1,695	142	3.23	0.09
Engineering	3,308	235	2,886	234	3.55	0.16
English/Journalism	1,945	263	1,567	220	3.48	0.24
Home Economics	(B)	(B)	(B)	(B)	(B)	(B)
Law	4,060	365	3,624	344	3.57	0.11
Liberal Arts/Humanities	1,720	192	1,466	190	3.17	0.19
Mathematics/Statistics	(B)	(B)	(B)	(B)	(B)	(B)
Medicine/Dentistry	4,234	385	3,797	389	3.53	0.13
Nursing, Pharmacy/Technical Health	1,804	310	1,610	310	2.98	0.28
Physical/Earth Sciences	2,913	406	2,431	361	3.21	0.26
Police Science/Law Enforcement	(B)	(B)	(B)	(B)	(B)	(B)
Psychology	2,282	259	1,881	262	3.28	0.28
Religion/Theology	1,584	139	1,211	133	3.36	0.23
Social Sciences	2,124	234	1,745	213	3.20	0.23
Vo-tech studies	(B)	(B)	(B)	(B)	(B)	(B)
Other	2,101	168	1,717	159	3.15	0.17
Bachelor's Degrees						
Total	1,841	47	1,540	44	3.08	0.03
Agriculture/Forestry	1,945	203	1,559	211	3.25	0.22
Biology	1,559	218	1,201	183	2.73	0.23
Business/Management	2,381	163	2,179	162	3.48	0.06
Economics	2,846	372	2,280	318	3.36	0.21
Education	1,290	51	1,012	53	2.76	0.09
Engineering	2,833	170	2,282	124	3.38	0.09
English/Journalism	1,477	225	1,095	212	2.66	0.17
Home Economics	1,065	208	625	114	2.12	0.30
Law	(B)	(B)	(B)	(B)	(B)	(B)
Liberal Arts/Humanities	1,400	92	1,072	78	2.87	0.11
Mathematics/Statistics	2,116	270	1,809	274	3.20	0.21
Medicine/Dentistry	(B)	(B)	(B)	(B)	(B)	(B)
Nursing, Pharmacy/Technical Health	1,424	92	1,196	91	2.99	0.16
Physical/Earth Sciences	2,529	391	2,068	323	3.08	0.20
Police Science/Law Enforcement	(B)	(B)	(B)	(B)	(B)	(B)
Psychology	1,251	157	1,166	162	2.91	0.21
Religion/Theology	(B)	(B)	(B)	(B)	(B)	(B)
Social Sciences	1,610	157	1,371	123	3.00	0.12
Vo-tech studies	(B)	(B)	(B)	(B)	(B)	(B)
Other	1,840	187	1,656	181	3.24	0.13

[1] Includes associate degrees and vocational certificates, not shown separately.
(B) Base is less than 200,000 persons.

Table 5. High School Program and Courses Taken, by Sex, Race, and Age: for Persons 16 Years and Over

(For persons who have attended at least 12 years of school. Numbers in thousands)

Course taken	Total		Academic-/college prep.	Vocational	Business	General	Other
	Number	Percent					
All persons	129,856	100	55,124	7,936	16,042	49,796	956
Algebra	102,696	79	52,813	4,675	9,868	34,805	535
Trigonometry or Geometry	71,429	55	45,941	2,428	4,155	18,538	368
Chemistry or Physics	62,352	48	40,670	2,194	3,132	16,028	328
English, 3 yrs. or more	121,383	93	53,572	7,013	14,974	45,240	585
Foreign language, 2 yrs. or more	56,855	44	38,760	1,055	4,697	12,034	311
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	73,883	57	23,975	6,670	9,337	33,404	497
Business courses, 2 yrs. or more	54,297	42	17,707	2,069	14,816	19,506	200
Male	62,334	100	27,006	5,812	2,833	26,150	532
Algebra	50,837	82	26,181	3,487	2,071	18,775	323
Trigonometry or Geometry	37,456	60	23,483	1,914	1,263	10,551	245
Chemistry or Physics	33,812	54	21,550	1,663	1,043	9,337	219
English, 3 yrs. or more	57,852	93	26,166	5,106	2,593	23,666	317
Foreign language, 2 yrs. or more	24,384	39	17,799	530	790	5,115	151
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	36,243	58	11,591	5,216	1,504	17,641	291
Business courses, 2 yrs. or more	16,043	26	6,339	963	2,199	6,501	42
Female	67,522	100	28,118	2,124	13,209	23,646	424
Algebra	51,859	77	26,632	1,188	7,797	16,030	212
Trigonometry or Geometry	33,973	50	22,458	514	2,892	7,987	123
Chemistry or Physics	28,540	42	19,120	531	2,089	6,691	109
English, 3 yrs. or more	63,531	94	27,406	1,907	12,376	21,574	268
Foreign language, 2 yrs. or more	32,471	48	20,961	525	3,907	6,919	160
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	37,640	56	12,384	1,454	7,833	15,763	206
Business courses, 2 yrs. or more	38,254	57	11,368	1,106	12,617	13,005	158
White	114,366	100	48,998	6,887	14,590	43,085	805
Algebra	90,689	79	47,074	4,091	8,912	30,175	437
Trigonometry or Geometry	63,582	56	41,249	2,148	3,647	16,229	308
Chemistry or Physics	54,268	47	36,182	1,719	2,691	13,409	266
English, 3 yrs. or more	107,092	94	47,668	6,056	13,633	39,270	466
Foreign language, 2 yrs. or more	50,493	44	34,979	850	4,265	10,133	266
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	63,758	56	20,561	5,798	8,442	28,551	406
Business courses, 2 yrs. or more	47,865	42	15,306	1,719	13,543	17,158	138
Black	12,180	100	4,601	897	1,201	5,372	109
Algebra	9,272	76	4,270	479	775	3,684	65
Trigonometry or Geometry	5,662	46	3,372	226	393	1,642	30
Chemistry or Physics	5,922	49	3,222	385	327	1,950	38
English, 3 yrs. or more	11,486	94	4,530	827	1,124	4,915	89
Foreign language, 2 yrs. or more	4,456	37	2,683	168	323	1,260	21
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	8,230	68	2,654	744	764	3,995	73
Business courses, 2 yrs. or more	5,190	43	1,881	317	1,052	1,880	61
Persons 15 to 24	25,512	100	11,193	2,257	2,426	9,448	187
Algebra	20,106	79	10,815	1,306	1,711	6,203	72
Trigonometry or Geometry	13,764	54	9,428	593	829	2,890	24
Chemistry or Physics	11,771	46	8,319	451	572	2,394	36
English, 3 yrs. or more	24,262	95	11,004	2,081	2,319	8,767	91
Foreign language, 2 yrs. or more	10,187	40	7,263	246	669	1,965	43
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	15,300	60	4,977	1,921	1,429	6,882	91
Business courses, 2 yrs. or more	10,967	43	4,325	630	2,151	3,841	22

Table 5. High School Program and Courses Taken, by Sex, Race, and Age: for Persons 16 Years and Over—Continued

(For persons who have attended at least 12 years of school. Numbers in thousands)

Course taken	Total		Academic-/college prep.	Vocational	Business	General	Other
	Number	Percent					
Persons 25 to 34	35,177	100	15,690	2,354	3,814	13,078	241
Algebra	27,554	78	14,995	1,324	2,428	8,712	95
Trigonometry or Geometry	19,804	56	13,256	677	1,087	4,718	67
Chemistry or Physics	17,111	49	11,702	602	744	3,991	73
English, 3 yrs. or more	32,638	93	15,212	2,063	3,547	11,657	159
Foreign language, 2 yrs. or more	16,093	46	11,398	315	1,103	3,227	51
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	20,708	59	7,065	1,962	2,399	9,142	139
Business courses, 2 yrs. or more	14,165	40	5,028	606	3,544	4,924	63
Persons 35 to 44	25,716	100	11,618	1,263	3,289	9,407	138
Algebra	20,314	79	11,146	717	1,944	6,410	97
Trigonometry or Geometry	14,409	56	9,762	375	834	3,370	88
Chemistry or Physics	12,714	49	8,786	398	577	2,909	43
English, 3 yrs. or more	24,291	94	11,353	1,126	3,115	8,591	106
Foreign language, 2 yrs. or more	11,622	45	8,380	177	895	2,135	34
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	14,896	58	5,070	1,077	2,094	6,575	81
Business courses, 2 yrs. or more	11,280	44	3,729	328	3,044	4,133	47
Persons 45 to 54	16,634	100	6,328	835	2,308	7,042	121
Algebra	12,882	77	5,973	525	1,303	4,999	81
Trigonometry or Geometry	8,105	49	4,955	266	430	2,399	55
Chemistry or Physics	7,579	46	4,497	275	362	2,394	51
English, 3 yrs. or more	15,407	93	6,056	721	2,140	6,400	90
Foreign language, 2 yrs. or more	6,422	39	4,206	109	680	1,585	43
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	9,874	59	2,778	697	1,428	4,913	57
Business courses, 2 yrs. or more	7,315	44	1,944	201	2,196	2,938	37
Persons 55 to 64	14,380	100	5,526	789	2,367	5,514	184
Algebra	11,437	80	5,261	532	1,356	4,159	130
Trigonometry or Geometry	7,685	53	4,524	323	510	2,216	113
Chemistry or Physics	,979	49	4,006	331	515	2,025	102
English, 3 yrs. or more	,268	92	5,333	686	2,185	4,979	85
Foreign language, 2 yrs. or more	5,867	41	3,725	100	644	1,298	99
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	7,701	54	2,324	648	1,224	3,408	96
Business courses, 2 yrs. or more	6,184	43	1,579	208	2,228	2,149	19
Persons 65 and over	12,438	100	4,769	438	1,838	5,308	85
Algebra	10,404	84	4,624	271	1,126	4,323	60
Trigonometry or Geometry	7,662	62	4,017	195	464	2,946	40
Chemistry or Physics	6,197	50	3,360	138	362	2,314	24
English, 3 yrs. or more	11,519	93	4,615	336	1,667	4,847	54
Foreign language, 2 yrs. or more	6,665	54	3,787	108	706	2,024	40
Industrial Arts, Shop, or Home Economics, 2 yrs. or more	5,404	43	1,760	364	764	2,483	33
Business courses, 2 yrs. or more	4,386	35	1,103	96	1,655	1,521	12

Table 6. Characteristics of Persons Having Received Work-Related Training

(Numbers in thousands)

Characteristic	Total	Sex		Race			Education		
		Male	Female	White	Black	Other	Less than 9 years	9 to 12 years	More than 12 years
All persons, 18 to 64	143,770	70,033	73,736	123,222	16,296	4,249	11,713	77,062	54,995
Persons receiving work training	31,191	16,990	14,201	27,106	3,457	628	1,019	17,444	12,728
Uses training on current or most recent job	21,224	12,011	9,212	18,812	1,992	420	613	11,224	9,386
Location:									
Apprenticeship	1,706	1,466	241	1,583	93	30	43	1,106	557
Business/vo-tech school	7,063	3,144	3,918	6,096	803	163	220	4,758	2,084
Community college	2,883	1,341	1,542	2,482	341	60	53	1,180	1,650
4-year college	2,161	1,152	1,009	1,989	126	46	20	245	1,896
High school vo-tech program	2,424	1,212	1,212	2,044	361	20	27	2,000	397
Training program at work	10,810	6,097	4,713	9,660	962	188	285	5,555	4,970
Military	2,582	2,410	172	2,297	245	40	44	1,387	1,151
Correspondence	875	693	182	817	54	5	30	401	445
Previous job	2,243	1,282	961	1,995	206	43	48	1,128	1,067
Sheltered workshop	289	139	150	240	40	9	44	166	78
Vocational rehab. center	860	470	391	608	226	26	120	547	193
Other	3,986	2,109	1,877	3,345	551	90	189	1,906	1,891
Year of training:									
Now attending	1,818	1,179	639	1,627	135	55	56	981	780
1984	5,122	2,792	2,330	4,536	452	134	82	2,348	2,692
1983	3,962	2,051	1,911	3,546	378	37	83	2,088	1,792
1982	2,489	1,346	1,143	2,094	301	94	92	1,234	1,163
1981	1,869	903	966	1,576	262	31	34	1,101	734
1980	1,582	822	760	1,320	233	28	42	939	601
1979 or before	14,350	7,898	6,453	12,406	1,696	248	631	8,754	4,965
Length of training program (average number of weeks)	6.9	6.6	7.3	6.7	8.1	6.9	5.9	7.3	6.5
Payments for program provided by:									
Self or family	3,598	1,609	1,989	3,214	305	79	41	1,694	1,863
Employer	8,638	5,086	3,552	7,891	580	167	140	4,041	4,457
Federal, State or local government	4,119	2,146	1,973	3,185	807	131	174	2,714	1,231
Someone else	486	251	234	410	69	7	32	242	211
Participated in Government sponsored training program(s)[1]	824	332	492	579	188	57	30	628	166

[1] Includes the following programs: Job Training Partnership Act (JTPA), Comprehensive Employment Training Act (CETA), Work Incentive Program (WIN), Job Corps, and Trade Adjustment Assistance Act.

Appendix A. Overview of the SIPP Program

BACKGROUND

The Survey of Income and Program Participation (SIPP) provides a major expansion in the kind and amount of information available to analyze the economic situation of households and persons in the United States. The information supplied by this survey is expected to provide a better understanding of the level and changes in the level of well-being of the population and of how economic situations are related to the demographic and social characteristics of individuals. The data collected in SIPP will be especially useful in studying Federal transfer programs, estimating program cost and effectiveness, and assessing the effect of proposed changes in program regulations and benefit levels. Analysis of other important national issues such as tax reform, Social Security program costs, and national health insurance can be expanded and refined, based on the information from this new survey.

The first interviews in the SIPP took place in October 1983, nearly 8 years after the research and developmental phase, the Income Survey Development Program (ISDP), was initiated by the Department of Health, Education, and Welfare, in 1975. Between 1975 and 1980 extensive research was undertaken to design and test new procedures for collecting income and related socioeconomic data on a subannual basis and in a longitudinal framework. Much of the work centered around four experimental field tests that were conducted in collaboration with the Bureau of the Census to examine different concepts, procedures, questionnaires, and recall periods. Two of the tests were restricted to a small number of geographic sites; the other two were nationwide. In the first nationwide test, the 1978 Research Panel, approximately 2,000 households were interviewed. Because of the relatively small number of interviews, controlled experimental comparisons of alternatives were not possible; however, the panel did demonstrate that many new ideas and methods were feasible. It also laid a foundation for the largest and most complex test: the 1979 Research Panel. This panel consisted of a nationally representative sample of 8,200 households and provided a vehicle for feasibility tests and controlled experiments of alternative design features.

In the fall of 1981, virtually all funding for ISDP research and planning of the continuing SIPP program was deleted from the budget of the Social Security Administration. The loss of funding for fiscal year 1982 brought all work on the new survey to a halt. In fiscal year 1983, however, money for initiation of the new survey was allotted in the budget of the Bureau of the Census. Work began almost immediately in preparation for the survey start in October 1983. The design of the questionnaire for the first interview was similar in structure to that used in the 1979 ISDP panel study with two important exceptions. First, the reference period for the questions was extended from 3 months to 4 months in order to reduce the number of interviews and, therefore, lower costs. Second, the questions covering labor force activity were expanded in order to provide estimates that were closer, on a conceptual basis, to those derived from the Current Population Survey (CPS). The design also incorporated a number of other modifications resulting from experience with the 1979 pilot study.

SURVEY CONTENT

There are three basic elements contained in the overall design of the survey content. The first is a control card that serves several important functions. The control card is used to record basic social and demographic characteristics for each person in the household at the time of the initial interview. Because households are interviewed a total of 8 or 9 times, the card is also used to record changes in characteristics such as age, educational attainment, and marital status and to record the dates when persons enter or leave the household. Finally, during each interview, information on each source of income received and the name of each job or business is transcribed to the card so that this information can be used in the updating process in subsequent interviews.

The second major element of the survey content is the core portion of the questionnaire. The core questions are repeated at each interview and cover labor force activity, the types and amounts of income received during the 4-month reference period, and participation status in various programs. Some of the important elements of labor force activity are recorded separately for each week of the period. Income recipiency and amounts are recorded on a monthly basis with the exception of amounts of property

income (interest, dividends, rent, etc.). Data for these types are recorded as totals for the 4-month period. The core also contains questions covering attendance in postsecondary schools, private health insurance coverage, public or subsidized rental housing, low-income energy assistance, and school breakfast and lunch participation.

The third major element is the various supplements or topical modules that will be included during selected household visits. The topical modules cover areas that need not be examined every 4 months. Certain of these topical modules are considered to be so important that they are viewed as an integral part of the overall survey. Other topical modules have more specific and more limited purposes. No topical modules were included in the first or second waves of SIPP during the first year of the survey. (See the following section on sample design and table A-1 for a definition of the term "wave.")The third wave topical module covered (1) educational attainment, (2) work history, and (3) health characteristics (including disability). The fourth wave topical module covered (1) assets and liabilities, (2) pension plan coverage, and (3) housing characteristics. The fifth wave topical module covered (1) child care, (2) child support agreements, (3) support for nonhousehold members, (4) program participation history, and (5) reasons for not working. The sixth wave topical module covered (1) earnings and benefits, (2) property income and taxes, and (3) education and training.

SAMPLE DESIGN

The SIPP sample design for the 1984 panel consists of about 26,000 housing units selected to represent the noninstitutional population of the United States. (See appendix C for more details on the procedures used to select the sample.) About 20,900 of these were occupied and eligible for interview. Table A-1 shows the sample design for the first panel of SIPP. Each household in the sample was scheduled to be interviewed at 4-month intervals over a period of 2 1/2 years beginning in October 1983. The reference period for the questions is the 4-month period preceding the interview. For example, households interviewed in October 1983 were asked questions for the months June, July, August, and September. This household was interviewed again in February 1984 for the October through January period. The sample households within a given panel are divided into four subsamples of nearly equal size. These subsamples are called rotation groups and one rotation group is interviewed each month. In general, one cycle of four interviews covering the entire sample, using the same questionnaire, is called a wave. This design was chosen because it provides a smooth and steady work load for data collection and processing.

A new panel of smaller size was introduced in February 1985 and has been introduced in February of each succeeding year. This overlapping design provides a larger sample size from which cross-sectional estimates can be made. The overlap also enhances the survey's ability to measure change by lowering the standard errors on differences between estimates for two points in time.

SURVEY OPERATIONS

Data collection operations are managed through the Census Bureau's 12 permanent regional offices. A staff of interviewers assigned to SIPP conduct interviews by personal visit each month with most interviewing completed during the first 2 weeks of that month. Completed questionnaires are transmitted to the regional offices where they undergo an extensive clerical edit before being entered into the Bureau's SIPP data processing system. Upon entering this processing system the data are subjected to a detailed computer edit. Errors identified in this phase are corrected and computer processing continues.

Two of the major steps of computer processing are the assignment of weights to each sample person and imputation for missing survey responses. The weighting procedures assure that SIPP estimates of the number of persons agree with independent estimates of the population within specified age, race, and sex categories. The procedures also assure close correspondence with monthly CPS estimates of households. In almost all cases, a survey nonresponse is assigned a value in the imputation phase of processing. The imputation for missing responses is based on procedures generally referred to as the "hot deck" approach. This approach assigns values for nonresponses from sample persons who did provide responses and who have characteristics similar to those of the nonrespondents.

The longitudinal design of SIPP dictates that all persons 15 years old and over present as household members at the time of the first interview be part of the survey throughout the entire 2-1/2 year period. To meet this goal, the survey collects information useful in locating persons who move. In addition, field procedures were established that allow for the transfer of sample cases between regional offices. Persons moving within a 100-mile radius of an original sampling area (a county or group of counties) are followed and continue with the normal personal interviews at 4-month intervals. Those moving to a new residence that falls outside the 100-mile radius of any SIPP sampling area are interviewed by telephone. The geographic areas defined by these rules contain more than 95 percent of the U.S. population.

Because most types of analysis using SIPP data will be dependent not on data for individuals but on groups of individuals (households, families, etc.), provisions were made to interview all "new" persons living with original sample persons (those interviewed in the first wave). These new sample persons entering the survey through contact with original sample persons are considered as part of the sample only while residing with the original sample person.

Table A-1. Design of First SIPP Panel

Rotation	Wave	Interview month	Reference months
1	1	Oct. 83	June, July, Aug., Sept. (83)
2	1	Nov. 83	July, Aug., Sept., Oct. (83)
3	1	Dec. 83	Aug., Sept., Oct., Nov. (83)
4	1	Jan. 84	Sept., Oct., Nov., Dec. (83)
1	2	Feb. 84	Oct., Nov., Dec. (83), Jan. (84)
2	2	March 84	Nov., Dec. (83), Jan., Feb. (84)
3	2	April 84	Dec. (83), Jan., Feb., March (84)
4	3	May 84	Jan., Feb., March, April (84)
1	3	June 84	Feb., March, April, May (84)
2	3	July 84	March, April, May, June (84)
3	3	Aug. 84	April, May, June, July (84)
4	4	Sept. 84	May, June, July, Aug. (84)
1	4	Oct. 84	June, July, Aug., Sept. (84)
2	4	Nov. 84	July, Aug., Sept., Oct. (84)
3	4	Dec. 84	Aug., Sept., Oct., Nov. (84)
4	5	Jan. 85	Sept., Oct., Nov., Dec. (84)
1	5	Feb. 85	Oct., Nov., Dec. (84), Jan. (85)
2	5	March 85	Nov., Dec. (84), Jan., Feb. (85)
3	5	April 85	Dec. (84), Jan., Feb., March (85)
4	6	May 85	Jan., Feb., March, April (85)
1	6	June 85	Feb., March, April, May (85)
2	6	July 85	March, April, May, June (85)
3	6	Aug. 85	April, May, June, July (85)
4	7	Sept. 85	May, June, July, Aug. (85)
1	7	Oct. 85	June, July, Aug., Sept. (85)
2	7	Nov. 85	July, Aug., Sept., Oct. (85)
3	7	Dec. 85	Aug., Sept., Oct., Nov. (85)
4	8	Jan. 86	Sept., Oct., Nov., Dec. (85)
1	8	Feb. 86	Oct., Nov., Dec. (85), Jan. (86)
2	8	March 86	Nov., Dec. (85), Jan., Feb. (86)
3	8	April 86	Dec. (85), Jan., Feb., March (86)
4	9	May 86	Jan., Feb., March, April (86)
1	9	June 86	Feb., March, April, May (86)
2	9	July 86	March, April, May, June (86)
3	9	Aug. 86	April, May, June, July (86)

Appendix B. Definitions and Explanations

Population coverage. The estimates in this report are restricted to the civilian, noninstitutional population of the United States and members of the Armed Forces living off post or with their families on post. The estimates exclude group quarters.

Householder. Survey procedures call for listing first the person (or one of the persons) in whose name the home is owned or rented as of the interview date. If the house is owned jointly by a married couple, either the husband or the wife may be listed first, thereby becoming the reference person, or householder, to whom the relationship of the other household members is recorded. One person in each household is designated as the "householder." The number of householders, therefore, is equal to the number of households.

Household. A household consists of all the persons who occupy a housing unit. A house, an apartment or other group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live and eat with any other persons in the structure and there is direct access from the outside or through a common hall.

For this report, the household composition was determined as of the interview date. A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated persons sharing a housing unit as partners, is also counted as a household. The count of households excludes group quarters. Examples of group quarters include rooming and boarding houses, college dormitories, and convents and monasteries.

Family. A family is a group of two or more persons (one of whom is the householder) related by blood, marriage, or adoption and residing together; all such persons (including related subfamily members) are considered members of one family.

Family household. A family household is a household maintained by a family; any unrelated persons (unrelated subfamily members and/or secondary individuals) who may be residing there are included. The number of family households is equal to the number of families. The count of family household members differs from the count of family members, however, in that the family household members include all persons living in the household, whereas family members include only the householder and his/her relatives.

Nonfamily household. A nonfamily household is a household maintained by a person living alone or with nonrelatives only.

Race. The population is divided into three groups on the basis of race: White, Black, and "other races." The last category includes American Indians, Asian/Pacific Islanders, and any other race except White and Black.

Persons of Hispanic or Spanish origin. Hispanic or Spanish origin was determined on the basis of a question that asked for self-identification of the person's origin or descent. Respondents were asked to select their origin (or the origin of some other household member) from a "flash card" listing ethnic origins. Persons of Hispanic or Spanish origin, in particular, were those who indicated that their origin was Mexican, Puerto Rican, Cuban, Central or South America, or some other Spanish origin. It should be noted that persons of Hispanic origin may be of any race.

Mean monthly income. The estimate is based on the total amount of income received by the individual during the 4 months prior to the interview month, divided by 4.

Mean monthly earnings. The estimate is based on the total of all earnings of the individual during the 4 months prior to the interview month, divided by the number of those months in which earnings were actually received.

Work activity. The estimate is based on the total number of months during the 4 months prior to the interview month, when the individual held a job for any amount of time.

Symbols. A dash (—) represents zero or a number which rounds to zero; "B" means that the base is too small to show the derived measure (less than 200,000 persons).

Rounding of estimates. Individual numbers are rounded to the nearest thousand without being adjusted to group totals, which are independently rounded. Derived measures are based on unrounded numbers when possible; otherwise, they are based on the rounded numbers.

Appendix C. Source and Reliability of Estimates

SOURCE OF DATA

The data were collected during the third wave of the 1984 panel of the Survey of Income and Program Participation (SIPP). The SIPP universe is the noninstitutionalized resident population of persons living in the United States.[1] However, information collected from persons in the farm population or living in group quarters is not included in this report.

The 1984 panel SIPP sample is located in 174 areas comprising 450 counties (including one partial county) and independent cities. Within these areas, the bulk of the sample consisted of clusters of two to four living quarters (LQ's), systematically selected from lists of addresses prepared for the 1970 decennial census. The sample was updated to reflect new construction.

Approximately 26,000 living quarters were designated for the sample. For wave 1, interviews were obtained from the occupants of about 19,900 of the designated living quarters. Most of the remaining 6,100 living quarters were found to be vacant, demolished, converted to nonresidential use, or otherwise ineligible for the survey. However, approximately 1,000 of the 6,100 living quarters were not interviewed because the occupants refused to be interviewed, could not be found at home, were temporarily absent, or were otherwise unavailable. Thus, occupants of about 95 percent of all eligible living quarters participated in wave 1 of the survey.

For the subsequent waves, only original sample persons (those interviewed in the first wave) and persons living with them were eligible to be interviewed. With certain restrictions, original sample persons were to be followed if they moved to a new address. All noninterviewed households from wave 1 were automatically designated as noninterviews for all subsequent waves. When original sample persons moved without leaving forwarding addresses or moved to extremely remote parts of the country, additional noninterviews resulted.

Noninterviews. Tabulations in this report were drawn from interviews conducted from May through August 1984. Table C-1 summarizes information on nonresponse for the interview months in which the data used to produce this report were collected.

Table C-1. Sample Size, by Month and Interview Status

Month	Eligible	Interviewed	Non interviewed	Nonresponse rate (%)*
May 1984	5400	4900	500	10
June 1984	5500	4800	700	13
July 1984	5400	4700	700	13
August 1984	5500	4700	700	14

*Due to rounding of all numbers at 100, there are some inconsistencies. The percentage was calculated using unrounded numbers.

Some respondents do not respond to some of the questions. Therefore, the overall nonresponse rate for some items is higher than the nonresponse rates in table C-1. (See appendix D.)

Estimation. The estimation procedure used to derive SIPP person weights involved several stages of weight adjustments. In the first wave, each person received a base weight equal to the inverse of his/her probability of selection. For each subsequent interview, each person received a base weight that accounted for following movers.

A noninterview adjustment factor was applied to the weight of every occupant of interviewed households to account for households which were eligible for the sample but were not interviewed. (Individual nonresponse within partially interviewed households was treated with imputation. No special adjustment was made for noninterviews in group quarters.) A factor was applied to each interviewed person's weight to account for the SIPP sample areas not having the same population distribution as the strata from which they were selected.

An additional stage of adjustment to person weights was performed to bring the sample estimates into agree-

[1]The noninstitutionalized resident population includes persons living in group quarters, such as dormitories, rooming houses, and religious group dwellings. Crew members of merchant vessels, Armed Forces personnel living in military barracks, and institutionalized persons, such as correctional facility inmates and nursing home residents, were not eligible to be in the survey. Also, U.S. citizens residing abroad were not eligible. With these qualifications, persons who were at least 15 years of age at the time of interview were eligible to be interviewed.

ment with independent monthly estimates of the civilian (and some military) noninstitutional population of the United States by age, race, and sex. These independent estimates were based on statistics from the 1980 Census of Population; statistics on births, deaths, immigration, and emigration; and statistics on the strength of the Armed Forces. To increase accuracy, weights were further adjusted in such a manner that SIPP sample estimates would closely agree with special Current Population Survey (CPS) estimates by type of householder (married, single with relatives or single without relatives by sex and race) and relationship to householder (spouse or other).[2] The estimation procedure for the data in the report also involved an adjustment so that the husband and wife of a household received the same weight.

RELIABILITY OF ESTIMATES

SIPP estimates in this report are based on a sample; they may differ somewhat from the figures that would have been obtained if a complete census had been taken using the same questionnaire, instructions, and enumerators. There are two types of errors possible in an estimate based on a sample survey: nonsampling and sampling. The magnitude of SIPP sampling error can be estimated, but this is not true of nonsampling error. Found below are descriptions of sources of SIPP nonsampling error, followed by a discussion of sampling error, its estimation, and its use in data analysis.

Nonsampling variability. Nonsampling errors can be attributed to many sources, e.g., inability to obtain information about all cases in the sample, definitional difficulties, differences in the interpretation of questions, inability or unwillingness on the part of the respondents to provide correct information, inability to recall information, errors made in collection such as in recording or coding the data, errors made in processing the data, errors made in estimating values for missing data, biases resulting from the differing recall periods caused by the rotation pattern and failure to represent all units within the universe (undercoverage). Quality control and edit procedures were used to reduce errors made by respondents, coders, and interviewers.

Undercoverage in SIPP results from missed living quarters and missed persons within sample households. It is known that undercoverage varies with age, race, and sex. Generally, undercoverage is larger for males than for females and larger for blacks than for nonblacks. Ratio estimation to independent age-race-sex population controls partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates to the extent that persons in missed households or missed persons in interviewed households have different characteristics than the interviewed persons in the same age-race-sex group. Further, the independent population controls used have not been adjusted for undercoverage in the decennial census.

The Bureau has used complex techniques to adjust the weights for nonresponse, but the success of these techniques in avoiding bias is unknown.

Comparability with other statistics. Caution should be exercised when comparing data from this report with data from earlier SIPP publications or with data from other surveys. The comparability problems are caused by sources such as the seasonal patterns for many characteristics, definitional differences, and different nonsampling errors.

Sampling variability. Standard errors indicate the magnitude of the sampling error. They also partially measure the effect of some nonsampling errors in response and enumeration, but do not measure any systematic biases in the data. The standard errors for the most part measure the variations that occurred by chance because a sample rather than the entire population was surveyed.

The sample estimate and its standard error enable one to construct confidence intervals, ranges that would include the average result of all possible samples with a known probability. For example, if all possible samples were selected, each of these being surveyed under essentially the same conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with a specified confidence that the average estimate derived from all possible samples is included in the confidence interval.

Standard errors may also be used for hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The most common types of hypotheses tested are 1) the population parameters are identical or 2) they are different. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the parameters are different when, in fact, they are identical.

All statements of comparison in the report have passed a hypothesis test at the 0.10 level of significance or better. This means that, for differences cited in

[2] These special CPS estimates are slightly different from the published monthly CPS estimates. The differences arise from forcing estimates of husbands to agree with counts of wives.

the report, the estimated absolute difference between parameters is greater than 1.6 times the standard error of the difference.

Note when using small estimates. Summary measures (such as percent distributions) are shown in the report only when the base is 200,000 or greater. Because of the large standard errors involved, there is little chance that summary measures would reveal useful information when computed on a smaller base. Estimated numbers are shown, however, even though the relative standard errors of these numbers are larger than those for the corresponding percentages. These smaller estimates are provided primarily to permit such combinations of the categories as serve each user's needs. Also, care must be taken in the interpretation of small differences. For instance, in case of a borderline difference, even a small amount of nonsampling error can lead to a wrong decision about the hypotheses, thus distorting a seemingly valid hypothesis test.

Standard error parameters and tables and their use. To derive standard errors that would be applicable to a wide variety of statistics and could be prepared at a moderate cost, a number of approximations were required. Most of the SIPP statistics have greater variance than those obtained through a simple random sample of the same size because clusters of living quarters are sampled for SIPP. Two parameters (denoted "a" and "b") were developed to calculate variances for each type of characteristic.

The "a" and "b" parameters vary by subgroup. Table C-4 provides "a" and "b" parameters for characteristics of interest in this report. The "a" and "b" parameters may be used to directly calculate the standard error for estimated numbers and percentages. Because the actual variance behavior was not identical for all statistics within a group, the standard errors computed from parameters provide an indication of the order of magnitude of the standard error for any specific statistic.

For those users who wish further simplification, we have also provided general standard errors in tables C-2 and C-3. Note that these standard errors must be adjusted by a factor from table C-4. The standard errors resulting from this simplified approach are less accurate. Methods for using these parameters and tables for computation of standard errors are given in the following sections.

Standard errors of estimated numbers. The approximate standard error, S_x, of an estimated number of persons, and so forth, shown in this report can be obtained in two ways. Note that neither method should be applied to dollar values.

It may be obtained by use of the formula

$$S_x = fs \qquad (1)$$

where f is the appropriate factor from table C-4, and s is the standard error on the estimate obtained by interpolation from table C-2. Alternatively, S_x may be approximated by the formula

$$S_x = \sqrt{ax^2 + bx} \qquad (2)$$

from which the standard errors in table C-2 were calculated. Use of this formula will provide more accurate results than the use of formula 1 above. Here x is the size of the estimate and "a" and "b" are the parameters associated with the particular type of character istic being estimated.

Illustration. SIPP estimates given in text table 1 show that there were 1,968,000 persons age 18-24 that earned a bachelors as their highest degree. The appropriate parameters and factor from table C-4 and the appropriate general standard error from table C-2 are

$$a = -.0000471,\ b = 6{,}073,\ f = .55,\ s = 197{,}000$$

Using formula 1, the approximate standard error is

$$S_x = .55 \times 197{,}000 = 108{,}000$$

Using formula 2, the approximate standard error is

$$\sqrt{(-.0000471)\,(1{,}968{,}000)^2 + (6{,}073)\,(1{,}968{,}000)} = 108{,}000$$

The approximate 90-percent confidence interval as shown by the data is from 1,795,000 to 2,141,000. Therefore, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of ali samples.

Table C-2. Standard Errors of Estimated Numbers of Persons
(Numbers in thousands)

Size of estimates	Standard error	Size of estimate	Standard error
200	63	50,000	883
300	77	80,000	1,020
600	109	100,000	1,062
1,000	141	130,000	1,062
2,000	199	135,000	1,055
5,000	312	150,000	1,021
8,000	392	160,000	987
11,000	457	180,000	886
13,000	494	200,000	725
15,000	528	210,000	609
17,000	560	220,000	446
22,000	629	26,000	678
30,000	721		

Table C-3. Standard Errors of Estimated Percentages of Persons

Base of estimated percentage (thousands)	Estimated percentage					
	1 or 99	2 or 98	5 or 95	10 or 90	25 or 75	50
200	3.1	4.4	6.9	9.5	13.7	15.8
300	2.6	3.6	5.6	7.7	11.2	12.9
600	1.8	2.6	4.0	5.5	7.9	9.1
1,000	1.4	2.0	3.1	4.2	6.1	7.1
2,000	1.0	1.4	2.2	3.0	4.3	5.0
5,000	0.6	0.9	1.4	1.9	2.7	3.2
8,000	0.5	0.7	1.1	1.5	2.2	2.5
11,000	0.4	0.6	0.9	1.3	1. 8	2.1
13,000	0.4	0.5	0.8	1.2	1.7	2.0
17,000	0.34	0.5	0.7	1.0	1.5	1.7
22,000	0.29	0.4	0.7	0.9	1.3	1.5
26,000	0.28	0.4	0.6	0.8	1.2	1.4
30,000	0.26	0.4	0.6	0.8	1.1	1.3
50,000	0.20	0.3	0.4	0.6	0.9	1.0
80,000	0.16	0.2	0.3	0.5	0.7	0.8
100,000	0.14	0.2	0.3	0.4	0.6	0.7
130,000	0.12	0.17	0.3	0.4	0 .5	0.6
220,000	0.10	0.13	0.2	0.3	0.4	0.5

Standard error of a mean. A mean is defined here to be the average quantity of some item per person and so forth. Standard errors are provided in the detailed tables for all displayed means.

Standard errors of estimated percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends upon both the size of the percentage and the size of the total upon which the percentage is based. When the numerator and denominator of the percentage have different parame ters, use the parameter (and appropriate factor) of the numerator.

The type of percentages presented in this report is the percentage of persons sharing a particular characteristic such as the percent of persons holding a bachelors degree.

For percentages of persons, the approximate standard error, $S_{(x,p)}$, of the estimated percentage p can be obtained by the formula

$$S_{(x,p)} = fs \qquad (3)$$

In this formula, f is the appropriate factor from table C-4 and s is the standard error of the estimate from table C-3. Alternatively, it may be approximated by the formula

$$S_{(x,p)} = \sqrt{\frac{b}{x}(p)(100\text{-}p)} \qquad (4)$$

from which the standard errors in table C-3 were calculated. Use of this formula will give more accurate results than use of formula 3 above. Here x is the size of the subclass of social units which is the base of the percent- p is the percentage and b is the parameter ciated with the characteristic in the numerator.

Illustration. Text table 1 shows that 6.9 percent of persons age 18-24 earned a bachelor's as their highest degree. Using formula 3 with the factor from table C-4 and the appropriate standard error from table C-3, the approximate standard error is

$$S_{(x,p)} = .55 \times .68\% = .4\%$$

Using formula 4 with the "b" parameter from table C-4, the approximate standard error is

$$S_{(x,p)} = \sqrt{\frac{6{,}073}{28{,}494{,}000}\ 6.9\%\ (100\%\text{-}6.9\%)} = .4\%$$

Consequently, the approximate 90 percent confidence interval as shown by these data is from 6.3 to 7.5 percent.

Standard error of a difference within this report. The standard error of a difference between two sample estimates is approximately equal to

$$S_{(x-y)} = \sqrt{S_x^2 + S_y^2} \qquad (5)$$

where S_x and S_y are the standard errors of the estimates x and y. The estimates can be numbers, percents, ratios, etc. The above formula assumes that the sample correlation coefficient, r, between the two estimates is zero. If r is really positive (negative), then this assumption will lead to overestimates (underestimates) of the true standard error.

Illustration. Again using text table 1, 15.7 percent of persons age 25-34 earned a bachelors as their highest

degree and 14.2 percent of persons age 35-44 earned the same degree status. The standard errors for these percentages are computed using formula 4, to be .4 and .5 percent. Assuming that these two estimates are not correlated, the standard error of the estimated difference of 1.5 percentage points is

$$S_{(x-y)} = \sqrt{(.4\%)^2 + (.5\%)^2} = .6\%$$

The approximate 90-percent confidence interval is from .5 to 2.5 percentage points. Since this interval does not contain zero, we conclude that the difference is significant at the 10 percent level.

Standard errors of ratios of means. The standard error for a ratio of means is approximated by:

$$S_{x/y} = \sqrt{\left(\frac{x}{y}\right)^2 \left[\left(\frac{S_y}{y}\right)^2 + \left(\frac{S_x}{x}\right)^2\right]}$$

where x and y are the means , and S_x and S_y are their associated standard errors. Formula 6 assumes that the means are not corre lated. If the correlation between the two means is actually positive (negative), then this procedure will provide an overestimate (underestimate) of the standard error for the ratio of means.

Table C-4. SIPP Generalized Variance Paramcters

Characteristic	a	b	factor
Total or White			
16+ Program participation and benefits, poverty (3):			
Both sexes	-0.0000943	16,059	0.90
Male	-0.0001984	16,059	0.90
Female	-0.0001796	16,059	0.90
16+ Income and labor force (5):			
Both sexes	-0.0000321	5,475	0.52
Male	-0.0000677	5,475	0.52
Female	-0.0000612	5,475	0.52
Educational attainment (4)	-0.0000471	6,073	0.55
All others[1] (6):			
Both sexes	-0.0000864	19,911	1.00
Male	-0.0001796	19,911	1.00
Female	-0.0001672	19,911	1.00
Black			
Poverty: (1)			
Both sexes	-0.0004930	13,698	0.83
Male	-0.0010522	13,698	0.83
Female	-0.0009274	13,698	0.83
All Others (2):			
Both sexes	-0.0002670	7,366	0.61
Male	-0.0005737	7,366	0.61
Female	-0.0004933	7,366	0.61

[1]For example, use these parameters for work history tabulations, asset and debt tabulations, retirement and pension tabulations, 0+ program participation, 0+ benefits, 0+ income, and 0+ labor force.

Note: For cross-tabulations, use the parameters of the characteristics with the smaller number within the parentheses.

Appendix D. Data Quality

Two principal determinants of the quality of data collected in household surveys are the magnitude of the imputed responses and the accuracy of the responses that are provided. This appendix provides information on the imputation rates for selected education items in the Survey of Income and Program Participation and covers some of the problems encountered in collecting data on education from the respondents in the survey.

Imputed responses refer either to missing responses for specific questions or "items" in the questionnaire or to responses that were rejected in the editing procedure because of improbable or inconsistent responses. An example of the latter is when a person with 6 years of regular school completed has also said they have obtained a Ph.D degree.

The estimates shown in this report are produced after all items have been edited and imputed whenever necessary. Missing or inconsistent responses to specific questions are assigned a value in the imputation phase of the data processing operation. The procedure used to assign or impute responses for missing or inconsistent data in SIPP is commonly referred to as the "hot deck" imputation method. The process assigns item values reported in the survey by respondents to nonrespondents. The respondent from whom the value is taken is called the "donor." Values from donors are assigned by controlling for demographic and labor force data avilable for both donors and nonrespondents.

Imputation rates for some of the major items discussed in this report are shown in table D-1. The imputation rates are calculated by dividing the number of missing responses by the number of persons who should have legitimately responded to the item. The rate of 16.5 percent for high school courses is based on the imputation of any of the seven different kinds of courses; in this context, the rate may be no worse than the values of around 7 percent for most of the other items. Over 90 percent of the sample had no or only one item imputed in this section of the questionnaire.

Another means of determining data quality is by comparison of the weighted survey estimates to other data, either from elsewhere in the questionnaire, a different survey, or known administrative estimates. Comparison of the educational attainment data to data from several other sources indicates that the estimates of highest degree attained are reasonable, given the limitations of the comparative data. Detailed information concerning high school courses and programs taken by the population while in school is not available. The relative proportions of persons taking specific courses by type of track, however, are internally consistent (that is, persons in vocational tracks were more likely to have reported taking 2 or more years of vocational courses than were persons in academic tracks).

Table D-1. Imputation Rates for Selected Education and Training History Items

Item	Rate
High school program	7.7
High school courses (any of seven)	16.5
Highest degree obtained	7.4
Field of highest degree	6.9
Participation in Federally sponsored work training program	7.4

In the 1970 census, about 34 million persons reported that they had ever completed a "vocational training program"; SIPP estimates 32 million positive responses to the question: "Has...ever received training designed to help people find a job, improve job skills, or learn a new job?" Since the SIPP question is much more global in nature, the SIPP estimate may not truly reflect the actual number of persons who could legitimately respond positively to the item.

Estimates of participation in specific job programs vary considerably from available administrative estimates (table D-2). While the estimate for WIN participants was about 25 percent higher than the program estimate for this time period, the estimates of persons receiving training from Job Corps or CETA/JTPA are less than one-half the numbers reported by these programs. Some of the discrepancies may be due to administrative reporting problems and less than exact comparability of reporting periods. It is unlikely, however, that such large shortfalls are due solely to inadequacies of the administrative data.

Table D-2. SIPP and Administrative-Based Estimates of Training Program Participants

Program	SIPP estimates	Program estimates
JTPA/CETA	671,000	1,450,000
WIN	163,000	122,000
Job Corps	109,000	280,000
Trade Adjustment	20,000	20,463

Appendix E. Facsimile of the 1984 SIPP Third Wave Questions

Section 5 — TOPICAL MODULES

Part A — EDUCATION AND WORK HISTORY

CHECK ITEM T1 — *Refer to Control Card item 24.* Is . . . 16 years of age or over? — 8000
1 ☐ Yes
2 ☐ No — *SKIP to item 1, page 53*

1a. **These next questions are about education, health and work experiennce.**

CHECK ITEM T2 — *Refer to Control Card item 31a.* Was . . .'s highest grade attended at least four years of high school? *(Codes 12—26 in cc item 31a.)* — 8002
1 ☐ Yes
2 ☐ No — *SKIP to 1e*

1b. **In high school what kind of program did . . . follow — was it** *(Read categories)* —
Mark (X) only one. — 8004
1 ☐ **Academic or college preparatory?**
2 ☐ **Vocational?**
3 ☐ **Business or commerical?**
4 ☐ **General?**
5 ☐ Some other type — *Specify*
x1 ☐ DK

c. **Did . . . complete courses in any of the following subjects in high school?**

		Yes	No	DK
(1) **Algebra**	8006	1 ☐	2 ☐	x1 ☐
(2) **Trigonometry or geometry**	8008	1 ☐	2 ☐	x1 ☐
(3) **Chemistry or physics**	8010	1 ☐	2 ☐	x1 ☐
(4) **3 or more years of English composition or literature**	8012	1 ☐	2 ☐	x1 ☐
(5) **2 or more years of a foreign language**	8014	1 ☐	2 ☐	x1 ☐
(6) **2 or more years of industrial arts, shop, or home economics**	8016	1 ☐	2 ☐	x1 ☐
(7) **2 or more years of business courses, such as bookkeeping, shorthand, or secretarial typing**	8018	1 ☐	2 ☐	x1 ☐

d. **Was the high school that . . . attended a public school or a privatc school?** — 8020
1 ☐ Public
2 ☐ Private
x1 ☐ DK

CHECK ITEM T3 — *Refer to Control Card item 31a.* Was . . .'s highest grade attended at least one year of college? *(Codes 21—26 in cc item 31a.)* — 8022
1 ☐ Yes — *SKIP to 2a*
2 ☐ No

1e. **Has . . . received a high school diploma?** *Include the program known as GED.* — 8024
1 ☐ Yes
2 ☐ No
x1 ☐ DK
} *SKIP to Check Item T5*

TOPICAL MODULES

2a. **In what year did . . . first attend college or university?**

8026 1 9 ☐☐
x1 ☐ DK

b. **What is the highest degree beyond a high school diploma that . . . has earned?**

8028
1 ☐ PhD or equivalent
2 ☐ Professional degree such as Dentistry, Medicine, Law or Theology
3 ☐ Master's Degree
4 ☐ Bachelor's Degree
5 ☐ Associate Degree
6 ☐ Vocational Certificate or diploma
7 ☐ Has not earned a degree } *SKIP to 2f*
x1 ☐ DK

c. **In what calendar year did . . . receive his/her highest degree?**

8030 1 9 ☐☐
x1 ☐ DK

d. *(SHOW FLASHCARD V)*
In what field of study did . . . receive that degree?

Code — Field of study
8032 ☐☐
x1 ☐ DK

CHECK ITEM I4 Did . . . receive a degree higher than a Bachelor's degree?
(Box 1, 2, or 3 marked in item 2b.)

8034
1 ☐ Yes
2 ☐ No — *SKIP to Check Item T5*

2e. **In what calendar year did . . . receive his/her Bachelor's degree?**

8036 1 9 ☐☐ } *SKIP to Check Item T5*
x1 ☐ DK

(SHOW FLASHCARD V)

2f. **In what field of study were the courses that . . . took at college or university?**

Code — Field of study
8038 ☐☐

g. **When was the last calendar year in which . . . was a student at a college or university?**

8040 1 9 ☐☐
OR
1 ☐ Is still a student
x1 ☐ DK

CHECK ITEM T5 *Refer to Control Card item 24.*
Is . . . 65 years of age or over?

8042
1 ☐ Yes — *SKIP to Check Item T9*
2 ☐ No

3a. **Has . . . ever received training designed to help people find a job, improve job skills or learn a new job?**

8044
1 ☐ Yes
2 ☐ No } *SKIP to Check Item T9*
x1 ☐ DK

b. **Does . . . use this training on . . .'s (most recent) job?**

8046
1 ☐ Yes
2 ☐ No

c. **Where did . . . receive this training?**
Mark (X) all that apply.

8048 1 ☐ Apprenticeship program
8050 2 ☐ Business, commercial, or vocational school
8052 3 ☐ Junior or community college
8054 4 ☐ Program completed at a 4 year college or graduate school
8056 5 ☐ High school vocational program
8058 6 ☐ Training program at work
8060 7 ☐ Military (exclude basic training)
8062 8 ☐ Correspondence course
8064 9 ☐ Training or experience received on previous job
8066 10 ☐ Sheltered workshop
8068 11 ☐ Vocational rehabilitation centers
8070 12 ☐ Other

CHECK ITEM T6 Are 2 or more categories *marked* in item 3c above?

8072 1 ☐ Yes
2 ☐ No — *SKIP to 3e*

3d. Where did . . . receive . . .'s latest training?

8074 ☐☐ *Enter code from 3c*

e. When did . . . receive . . .'s (most recent) training?

8076 1 ☐ Now attending
2 ☐ 1984
3 ☐ 1983
4 ☐ 1982
5 ☐ 1981
6 ☐ 1980
7 ☐ 1979 or before
x1 ☐ DK
} *SKIP to Check Item T9*

f. For how many weeks did . . . attend this (most recent) program?

8078 ☐☐ Weeks
OR
8080 1 ☐ Less than one week
x1 ☐ DK

g. Who paid for this (most recent) program?

8082 1 ☐ Self or family
2 ☐ Employer
3 ☐ Federal, State, or local government
4 ☐ Someone else

CHECK ITEM T7 Is "1982," "1983," "1984," or "Now attending" marked in item 3e above?

8084 1 ☐ Yes
2 ☐ No — *SKIP to Check Item T9*

3h. Since January 1, 1982, has . . . received training that was sponsored by any of the following programs —

(1) The Job Training Partnership Act or the Comprehensive Employment Training Act (JTPA or CETA)? 8086 1 ☐ Yes 2 ☐ No x1 ☐ DK

(2) The Work Incentive Program (WIN)? 8088 1 ☐ Yes 2 ☐ No x1 ☐ DK

(3) The Job Corps Program? 8090 1 ☐ Yes 2 ☐ No x1 ☐ DK

(4) The Trade Adjustment Assistance Act? 8092 1 ☐ Yes 2 ☐ No x1 ☐ DK

CHECK ITEM T8 Is "Yes" marked for one or more of the programs in item 3h?

8094 1 ☐ Yes — *Ask 3i—3k for each program marked*
2 ☐ No — *SKIP to Check Item T9*

	PROGRAM 1	PROGRAM 2
Enter code from 3h and name of training program. →	8096 Code ☐ Name of program	8116 Code ☐ Name of program
3i. In what year did . . . start his/her (Read name of program) training? *If more than one training episode, ask about most recent one first.*	8098 1 ☐ 1984 2 ☐ 1983 3 ☐ 1982	8118 1 ☐ 1984 2 ☐ 1983 3 ☐ 1982
j. For how many weeks did . . . attend this training program?	8100 ☐☐ Weeks OR 8102 1 ☐ Less than 1 week x1 ☐ DK	8120 ☐☐ Weeks OR 8122 1 ☐ Less than 1 week x1 ☐ DK

TOPICAL MODULES

k. What type of training program is (was) this?

Mark (X) all that apply.

8104	1 ☐ Classroom training-job skills	8124	1 ☐ Classroom training-job skills
8106	2 ☐ Classroom training-basic education	8126	2 ☐ Classroom training-basic education
8108	3 ☐ On-the-job training	8128	3 ☐ On-the-job training
8110	4 ☐ Job search assistance	8130	4 ☐ Job search assistance
8112	5 ☐ Work experience	8132	5 ☐ Work experience
8114	6 ☐ Other	8134	6 ☐ Other

CHECK ITEM T9 Is "Worked" marked on the ISS?

8138 1 ☐ Yes
2 ☐ No — *SKIP to 4b*

4a. These next questions are about the main job that . . . was working during the 4-month period.

CHECK ITEM T10 *Refer to Check Item E3, page 14 or Check Item S1, page 18.*

On . . .'s main job, did . . . work for an employer or is . . . self-employed?

8138 1 ☐ Worked for an employer — *SKIP to 5a*
2 ☐ Self-employed — *SKIP to 5f*

4b. In what year did . . . last work at a paid job lasting 2 consecutive weeks or more?

8140 1 9 ☐☐ *SKIP to 4d*

OR

X3 ☐ Never worked for 2 consecutive weeks or more

c. What is the main reason . . . never worked 2 consecutive weeks or longer at a job or business?

8142
1 ☐ Taking care of home or family
2 ☐ Ill or disabled
3 ☐ Going to school
4 ☐ Couldn't find work
5 ☐ Didn't want to work
7 ☐ Other
X1 ☐ DK

SKIP to item 1, page 53

d. At the time . . . last worked 2 consecutive weeks or longer, what was the name of . . .'s employer or business?

PGM 8 Name of employer or business

8150 _____

_____

CARD EE

MAJOR FIELD OF STUDY

Code	Major Field
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03 —	Business or Management
04 —	Economics
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